The Iron Age

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SCIENTIFIC AND TECHNICAL.

Seventy-Two Simultaneous Messages Over One Telegraph Wire.

The Committee of Examiners of the Section on Telegraphic Systems of the Franklin Institute Electrical Exhibition, at Philadelphia, have made a report, printed in the last issue of the Franklin Institute *Journal*. From it we take the following on the now famous Delany synchronous multiple telegraph system, by which it has become possible to transmit as many as 72 different messages simultaneously over one wire: "This system is founded upon an invention of Paul Lacour, of Denmark, made prior to 1878, and termed the 'phonic wheel.' The phonic wheel is employed for regulating and rendering approximately synchronous the revolutions of the distributors at opposite ends of the line. The two principal difficulties which Mr. Delany has been obliged to overcome in reducing this system to practice are, first, the maintenance of the necessary synchronism, and, second, the utilization in the formation of signals of exceedingly short pulsations of electricity. Speaking in general terms, it may be stated that Mr. Delany has, in our opinion, absolutely overcome the first of these difficulties by the happy conception of providing for an automatic mutual interchange of correcting pulsations at frequent intervals between the separate instruments, in case there exists any tendency toward deviation from the normal speed, the latter being approximately controlled by the vibrations of a tuning-fork acting electro-magnetically upon the phonic wheel. It has been conclusively demonstrated that synchronism may be maintained continuously for days between two instruments at opposite terminals of a telegraph line without a variation exceeding the 600th part of a second. The effective rate of speed with which the apparatus can be operated, or, more properly, the actual transmitting capacity of a given conductor equipped with this apparatus, depends, first, upon the rapidity with which successive impulses can be made to traverse a line, while preserving to each impulse a degree of strength sufficient to produce the movement of the armature of a relay at the receiving station, and, second, upon the mechanism by which these pulsations may be made available in the production of arbitrary signals representing letters and words. The rapidity with which the successive electrical pulsations can be produced at the distant end of a given telegraphic line is inversely in proportion to the resistance and electrostatic capacity per unit of length of the insulated conductor, and inversely as the square of its length. Other things being equal, the rapidity is greatly augmented by forming a connection directly between the line and the earth at each end of the line between each two pulsations. This operation is provided for in Mr. Delany's apparatus. The employment of pole-changing or double-current keys and polarized receiving instruments (a suggestion understood to be due to Mr. E A. Calahan, who has been associated with Mr. Delany in the development of the invention) enables short and rapid pulsations to be utilized to the fullest extent in the formation of the signals of the conventional telegraphic code. For a detailed description of the apparatus we would refer to a recently-published paper by Prof. E. J. Houston.

The actual performance of the apparatus during the tests made by the committee, over 200 miles of line (from Philadelphia to Jersey City and return), was eminently satisfactory. The rate of rotation of the distributors was stated by the exhibitor to be 170 revolutions per minute, the same as that of the instruments in daily commercial use between Boston and Providence, a distance of about 50 miles. At this rate of speed the duration of each contact was .0021 second. With the apparatus arranged for six distinct communications, either all in the same direction or partly in one direction and partly in the other, it was ascertained by actual trial that communications could be received with distinctness upon the ordinary Morse sounder at a rate of from 30 to 40 words per minute. With the apparatus arranged for 12 communications a rate of 20 words per minute was attained with equal facility. The application of the system, however, is not limited to the simultaneous transmission of 12 messages, for, by the use of a type-printer especially designed for the purpose (specimens of which are exhibited with the other apparatus), as many as 72 independent circuits may be actuated. This is necessarily effected at a less rate of speed, although it is quite sufficient to enable each of the separate users of the line to transmit during six hours at least 100 dispatches of the average length, a speed which may be increased proportionately, when desired, by placing at the disposal of the user one thirty-sixth or one eighteenth instead of one seventy-second of the entire capacity of the line.

Fac-simile Telegraphic Transmission

Prof. Edwin J. Houston, in an article in the March number of the Franklin Institute *Journal*, published a very interesting reproduction of a copy of the first *fac-simile* telegraphic transmission with a crude experimental apparatus obtained by Mr. P. B. Delany. Professor Houston says: "Although other systems of *fac-simile* transmission have been tried, and *fac-simile* dispatches have been sent and successfully reproduced, yet when but a single wire was employed the time required for the transmission was so protracted, and the uncertainty of correct reproduction so great, that such systems of transmission could never come into actual commercial use. Mr. Delany's system, however, differs from the preceding in that it insures speed and certainty of correct reproduction. By means of the application of his synchronous system an area of 12 square inches can be covered in one minute by the use of a single wire. The many uses of this system of *fac-simile* transmission can scarcely be properly appreciated at this time, for, notwithstanding the comparatively coarse lines that are so evident in the specimens annexed, yet with more carefully prepared apparatus, constructed for actual use, we do not doubt but that Mr. Delany will be able to transmit portraits and other similar work equal in fineness to the ordinary woodcut, so that criminals may be readily intercepted in their flight by the telegraphing of their portraits; or, in times of war, maps showing the movement of armies, sketches of fortifications and works may be transmitted; or the illustrated papers may be furnished, telegraphically, with sketches of disasters at the same time that particulars of the same are being transmitted to them. An evident advantage of such a system of telegraphic transmission is in the readiness with which it can telegraph in any language, even Chinese, for instance."

The Secretary of the Treasury has been informed by the United States consul at Tangier of the offer of the Moorish Government of an antimony mine to public tender to be worked, the mineral to be exported. The mine is situated in the district of Algeria, near the Mediterranean, about five hours from Tehuan and eleven hours from Tangier. The conditions of its concession are: The mineral must be shipped from one of the two neighboring ports, which are especially suited for export and import, such as Tehuan and Tangier, and that for a term of 10 years. Competition is open to all foreign powers, and the concession will be given to the highest bidder, with whom a contract will be made, or the Government may decide not to accept any bid and explore the mine on its own account.

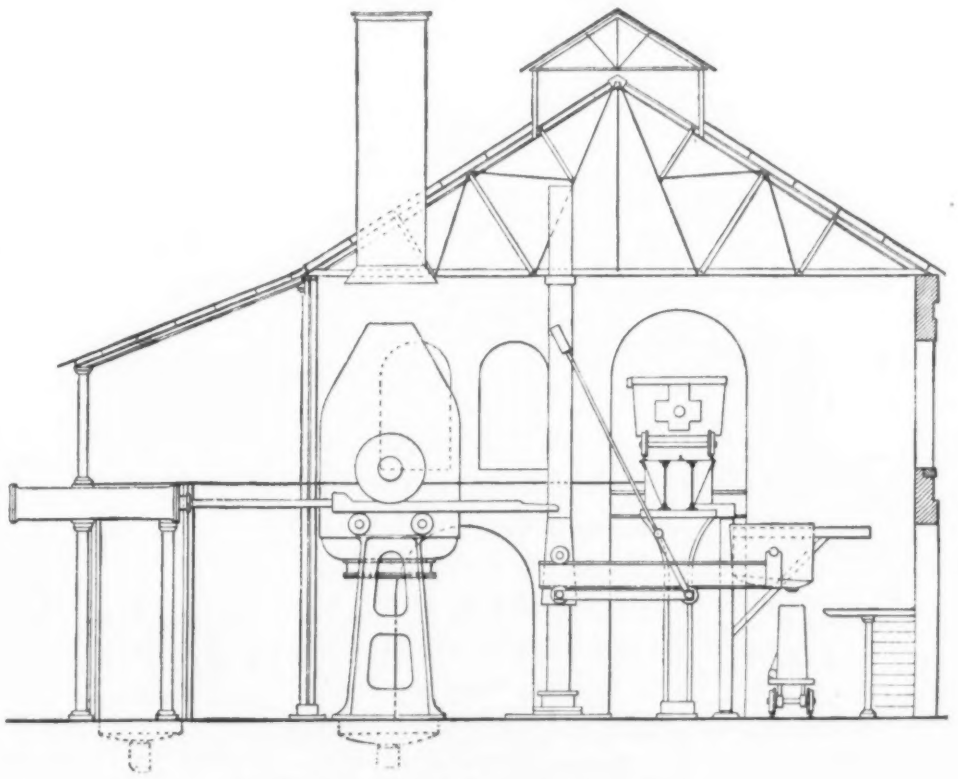

Fig. 1.—Cross-Section of Laureau Bessemer Plant.

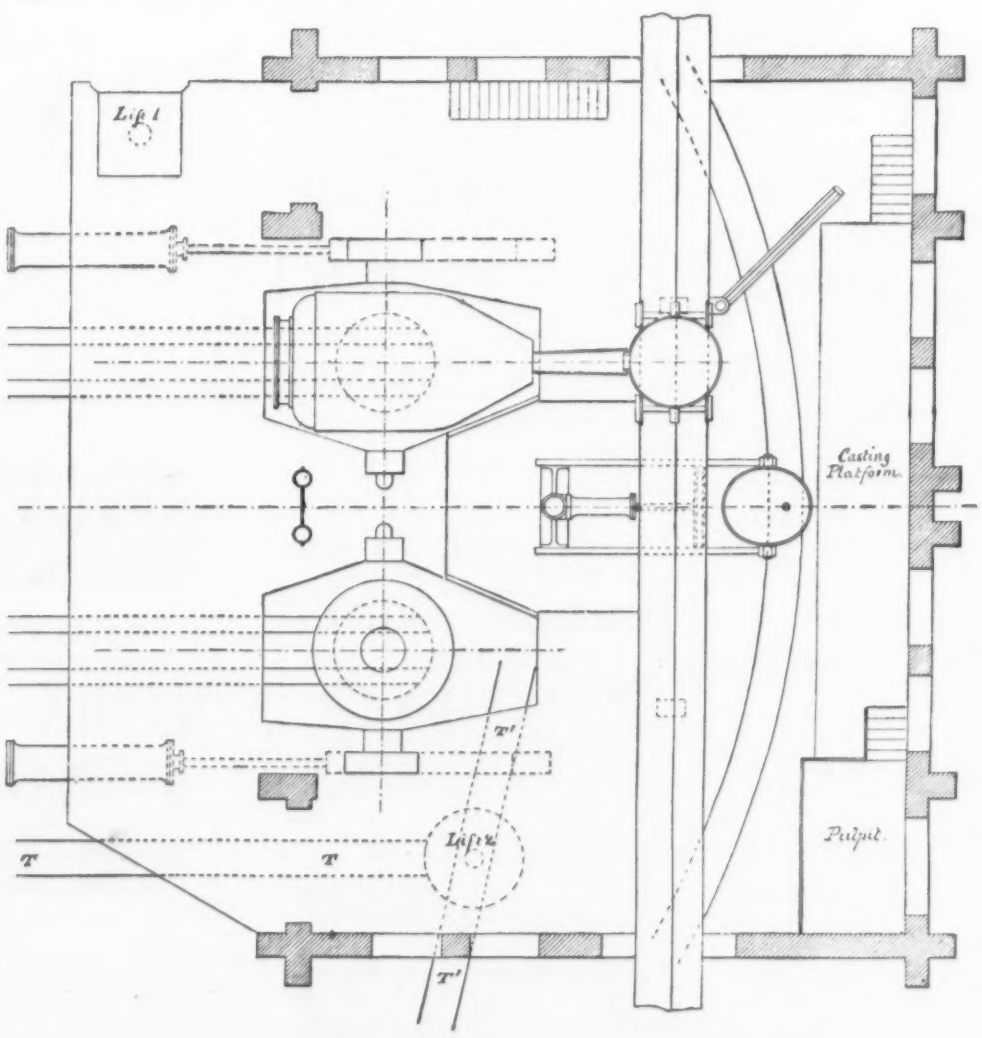

Fig. 2.—Plan of Laureau Bessemer Plant.

THE LAUREAU BESSEMER PLANT WITHOUT CASTING-PIT.

Plan for a Bessemer Converting-House Without a Casting-Pit.

BY L. G. LAUREAU, NEW YORK.*

This paper is presented to call the attention of steel manufacturers to the need of further reform in the manner of casting and handling ingots. The problem of making the work usually performed in and around the casting-pit less dangerous to the men and less costly to the management is one which has occupied the minds of all Bessemer engineers since the first days of the discovery. Holley's unerring judgment led him at once to condemn the 9-feet deep, two-story high, English well-hole, and his American plant may be said to have had the shallow pit for a starting point; it necessitated the raising of the vessels, and brought about all the attending advantages.

European engineers also have endeavored to improve the original casting-pit, and the later English plants have no depression at all, the ingots being cast in a ring on the general level. On the Continent, especially in Sweden and in connection with small converters or the Casperson converter ladle, the molds are sometimes placed on turn-tables, revolving so as to bring the mold tops within reach of the casting nozzle. Some important establishments, both in England and on the Continent, have adopted the movable ladle, which, after receiving the charge, is hauled to a distant building, where the molds stand either in a trench or upon the ground. Ingots are also cast from a ladle into molds placed on cars. The two last-mentioned methods give the possibility of separating casting from stripping, thus affording relief from the excessive heat of a pit in which both operations take place at a time. A long practice has proved that the dangers from spilling or the bursting of a ladle, and the subsequent fouling of the running gear of the ladle or mold car, have been exaggerated. Hundreds of thousands of tons have been cast in that way, and I have been assured by engineers who have used these means extensively that no serious trouble had ever been experienced.

While movable ladles and the movable mold cars have proved fairly successful in rendering the work less arduous, it cannot be said that any economy in labor or apparatus is realized by their use; the ingot cranes must do their work as in any other case by first removing the mold and then the ingot. This is necessarily wasteful of steam by reason of the false maneuvers it implies, the crane making several motions to perform one act only. Any system aiming at the greatest economy in this respect must be automatic, or nearly so, or use steam and water pressure in such a way as to waste the least power possible and at the same time suppress all, or nearly all, the hand labor. I believe the solution of the problem lies in casting the ingots into molds placed on cars so constructed that all subsequent operations, such as stripping and putting back into place, may be done automatically or by easily-handled machinery. One of the first advantages to be derived from the use of mold cars is the extreme simplicity to which the converting-house can be reduced. The pit and the ingot cranes can be entirely suppressed, and all the operations of casting, cleaning, ladle changing, &c., can take place on the general level.

Fig. 1 is a cross-section and Fig. 2 a plan of a converting-house specially adapted to casting on cars. There are two 10-ton vessels receiving the metal in front. The only crane of importance is the ladle crane, which is raised by hydraulic pressure and has a radial motion. The only other crane in the house is a small one, the jib of which swings under the platform. It is used mainly in turning over the ladles after a cast and raising the materials for stopping molds to the casting platform. The platforms around the converters are ample—in fact, more roomy than in the usual plant—and all the operations usually carried on in the casting-house can be performed without hindrance or lack of space, and yet the whole building is only 62 x 43 feet in the clear, with a total hight of 32 feet. The repair shop and cupola-house can be placed at any convenient point, the location depending entirely upon the configuration of the ground.

The arrangement to change ladles on the crane is as follows: They are brought from the repair shop on a low car which runs on a track, T. The track T', which crosses the track T almost at right angle, is raised from the ground so that when a ladle car is upon it the ladle trunnions are a few inches above the trunnion bearings on the large ladle crane. The ladle car is raised to the level of this track T' (about 2 feet above the ground) by means of the lift Q, which is then turned around so as to bring the tracks in a straight line. The ladle crane is swung so that its jib straddles the track T'. The ladle is then pushed between the jib, and when the trunnions are in position just above the bearings the crane is made to lift the ladle off the car. The exchange of ladles is made in a similar manner. An empty car is placed in the proper position on the track T', and the crane, being swung around, deposits its old ladle upon it; it is then ready to pick up a repaired ladle in the way above described. The operation of casting is carried on by one man at the ladle and two men to stop the molds; this is all the pit force necessary. The number of men on the pulpit may also be reduced by reason of the suppression of the ingot cranes. Having cast the ingots upon a car, the next step is to handle them as speedily and as economically as possible, reducing both apparatus and labor to the simplest expression.

The apparatus shown in Fig. 5 consists, first, of a hydraulic cylinder, P, moved horizontally upon ways by a small auxiliary cylinder. The molds A are hinged to the car B in the manner shown. A wire rope or chain, *d*, bifurcating at X into two branches Y and Y', winds around a drum actuated by a quick-working steam cylinder and passes over pulleys, as shown. The car having been brought to its position, the hook at the end of chain Y is attached to a bar which binds the two molds together near the top. The drum is made to revolve, and the mold is pulled over toward the carrying-bar C, fixed upon strong buffer springs. While the mold is descending the slack of the rope is taken up by a quick working of the drum, so that the fall may be eased up by applying a brake at the

(Continued on page 15.)

* A paper read at the New York meeting of the American Institute of Mining Engineers.

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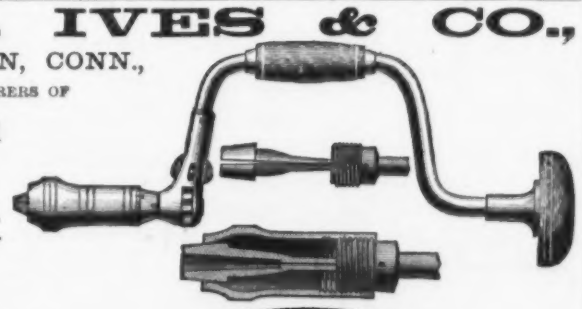

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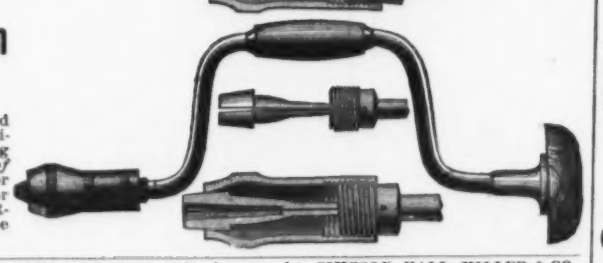

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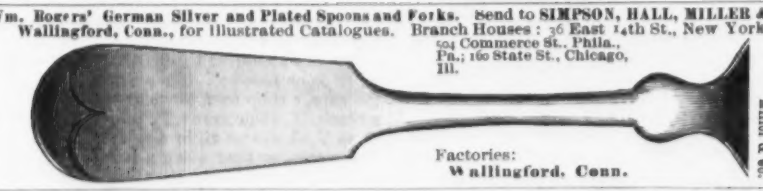

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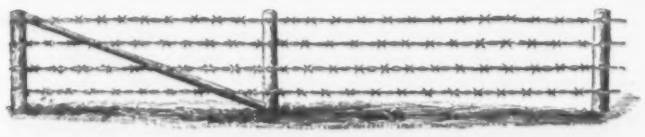

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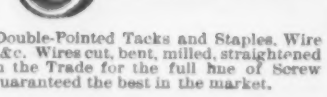

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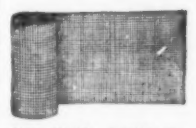

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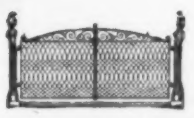

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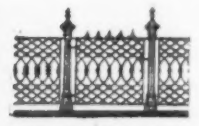

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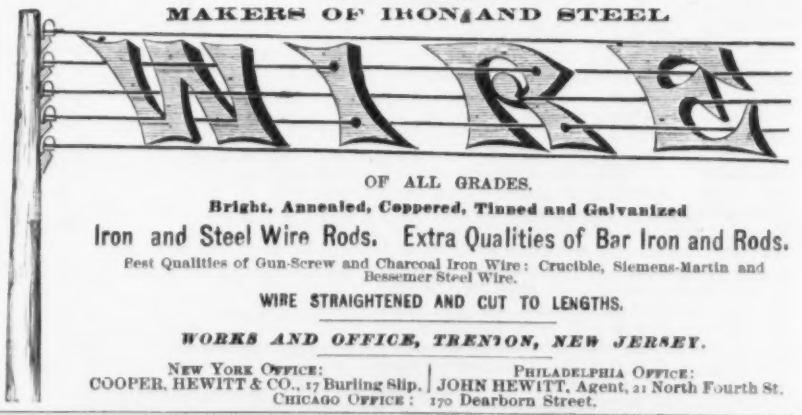

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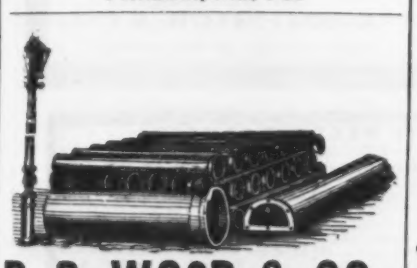

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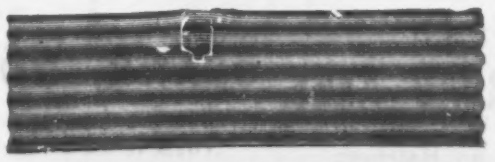

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Duties on Agricultural Machinery in Various Countries.

In a compilation of consular reports relating to agricultural machinery in the several countries of the world, recently issued from the Department of State, much information is given showing the character of the agricultural implements used in the countries named, and how to introduce American implements into foreign markets. The reports all agree that American tools and machinery have a high reputation abroad, and their introduction into foreign markets would, it is claimed, be greatly facilitated by manufacturers having a direct representative centrally located. The tariffs on machinery in the different countries are given as follows:

In Russia after July 1, 1884, all agricultural machinery was subjected to a duty of 50 copecks, gold, about 37 to 38 cents, per pood (£36 English), ostensibly for the purpose of stimulating Russian agricultural machine works, but the farmers regard the measure as an indirect tax on the productions of the soil.

In Denmark machinery and engines are subjected to a customs duty of 2 kroners (say 52 cents) per cwt. The freight will depend in great measure upon the size and weight of the article, but the direct steam line from New York appears to offer every facility to shippers, and the cost of carriage, insurance, customs, dues, &c., on machinery from the United States to that country may be placed at 10 to 20 per cent. of the value, according to the relative proportions between value, weight and volume of the article. The manufacturers of the United States will find themselves placed on the same footing and enjoying the same advantages as are enjoyed by those of other nations.

In Germany, conformable to the tariff of 1879, machinery pays duty according to the chief material of which composed, viz.: If of wood, the duty is 71 cents per 220 pounds; same if of cast iron; if of wrought iron, the duty is $1.19 per 220 pounds; if of other (not precious) metals, the duty is $1.90 per 220 pounds. Hay and manure forks pay a duty of $2.30 per 220 pounds.

In Belgium the entry duty for all machines and implements of agriculture is 10 per cent. ad valorem.

In the Netherlands no import duties are imposed on agricultural machinery, implements or tools.

In Switzerland the import duty on iron and steel goods is 5 per cent. ad valorem, or from 12 to 60 cents per cwt., according to the composite nature of the metal and the manner it has been wrought or elaborated. On cutlery it is 16 francs and on firearms 30 francs per cwt.

In Spain the following tariff is now in force on machinery, iron implements and tools for agricultural purposes, per 100 kg., dead weight:

Agricultural machinery and plows	$0.19
Iron implements and tools	3.97
Wood implements and tools (say, handles of shovels, forks, &c.)	3.75
Steam engines	.48

The above are the custom-house duties for importations from countries included in the commercial treaties with Spain. Those coming from countries not included in commercial treaties with Spain must pay as follows, per 1000 kg., dead weight:

Agricultural machines and plows	$0.50
Agricultural implements and tools	4.80
Agricultural wood implements and tools (say, handles of shovels, forks, &c.)	4.00
Engines	.50

Besides custom-house duties above mentioned, goods of any kind from European nations, whether included in commercial treaties or not, must pay as follows: 20 cents per each 1000 kg., dead weight, as harbor fees, and 11½ cents per each 1000 kg., dead weight, as harbor-work fees. Importations from any part of the United States, instead of the above, must pay as follows: 50 cents per each 1000 kg., draft weight, as harbor fees, and 13¾ cents per each 1000 kg., draft weight, as harbor-work fees.

In Italy the duties on the import of machinery are $1.60 per quintal (220.46 pounds). Our manufacturers enjoy equal advantages with those of other countries. Agrarian machines fall into class 1980 of the Italian customs tariff, "machines not specially named and detached pieces of machines, except those for garnishing carding machines," and are taxed 8 lire, or $1.60, in the general tariff. For the following countries, however, there is a tariff of favor under which the tax for those machines is 6 lire, or $1 20, the metric quintal. These countries are France, England, Belgium, Holland, Sweden and Norway, Turkey, United States of America and Russia.

In Greece agricultural implements and machinery are duty free. In France manufactures coming direct from the country where manufactured pay the following duties: Iron tools, $2 per 200 pounds; iron and steel, $3 per 200 pounds; copper and steel, $4 per 200 pounds; agricultural implements, $1.20 per 200 pounds. An extra duty of 70 cents per 200 pounds is charged on the above-named goods if coming indirectly into Bordeaux. The manufacturers of other countries do not enjoy any advantages which are not shared by those of the United States.

In Canada the duties on all agricultural implements imported is 35 per cent. The valuation is upon the wholesale price, and it is quite important that the circulars and catalogues, if they give any prices, should not mislead the customs officers by printing prices far above the value of the implement. Under the present customs regulations every shipment should be accompanied by certificate of the manufacturer or dealer that the invoice is true and contains a true and full statement of the value of the goods. The following are the Mexican import duties: Fanning mills, horse-powers, mowers and reapers, plows and cultivators and all others not elsewhere specified—50 cents per 100 kg. (220 pounds), gross, except plows and their shares, which are free. Carriages, carts and parts of—carriages, &c., each, from $88 to $396 and 50 cents per 100 kg., gross, + 4 per cent. of total + 5 per cent. of total. Carts, each, $33 to $66 and 50 cents per 100 kg., gross, + 4 per cent. of total + 5 per cent. of total. Bar iron, pounds, sheet, band and hoop iron, do.—if

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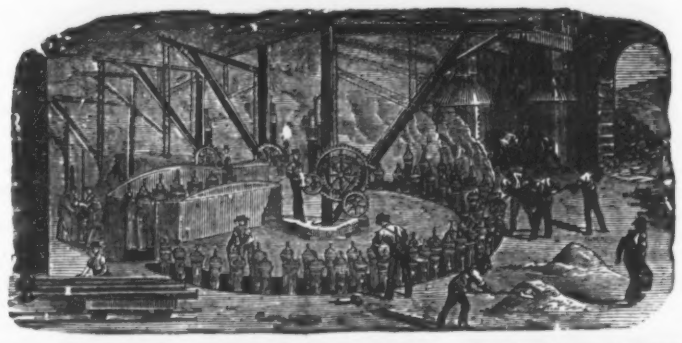

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Warranted Equal to any Produced.

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☞ All our Plate and Sheet Steel being rolled by a Patented Improvement, is unequaled for surface finish and exactness of gauge.

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For Shafting, Spindles, Rollers, &c., &c.

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'Iron Center' Cast Plow Steel.
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FRANKFORD, PHILADELPHIA, PA."

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We can furnish Forgings of any size, either Iron or Steel, plain, forged or rough, turned any diameter up to 30 inch. 35 feet long.

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FOR ALL PURPOSES.

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for mines, &c., 50 cents per 100 kg., gross. Other sorts, 6 cents to 20 cents per kg. (2½ pounds), 50 cents per 100 kg., gross, and the 4 per cent. on total and 5 per cent. on that total. Steam engines, stationary, number; boilers, separate; iron, machinery, not elsewhere specified—50 cents per 100 kg., gross. Nails and spikes, pounds—12 cents per kg., 50 cents per 100 kg., gross, and 4 per cent. and 5 per cent. on those totals. Ingots, bars, sheets and wires, pounds—free or free and 50 cents for most uses; others pay high duties. Cutlery—high duties, cannot classify. Edge tools and files and saws—if for agricultural, mining, industrial, scientific or artistic purposes—50 cents per 100 kg., gross. Scales and balances—29 cents per kg., 50 cents per 100 kg., gross, and 4 per cent. and 5 per cent.

In British Honduras all kinds of agricultural and manufacturing machinery is duty free, the colony having a tariff for revenue only, and there are no discriminating duties on account of the place of manufacture. All kinds of manufactured goods, with few exceptions, pay a duty of 10 per cent. ad valorem.

In British Guiana machinery of all kinds is admitted free of duty. Other implements, such as carpenters' tools, blacksmiths' tools, shovels, hoes, &c., are admitted at 7 per cent. ad valorem duty.

In Uruguay the tariff is as follows: Hay forks, picks, scythes, mills, machinery, hoes, reapers, plows, harrows, corn shellers, 5 per cent. duty and 5 per mill property tax; shovels and spades, 25 per cent.; scales, 25 per cent. All nations are on equal footing. The old "most-favored-nation" clause is obsolete.

In Peru American manufactures are subject to the same duty as those imported from other countries. These duties at present are by no means excessive, a small ad valorem charge being imposed, and many classes of agricultural machinery are almost free from this burden.

In Victoria, Australia, the Victorian tariff is a complex one, but the manufactures of all countries are on precisely the same footing. As already stated, the duty on agricultural implements and machinery varies from 20 to 25 per cent. ad valorem.

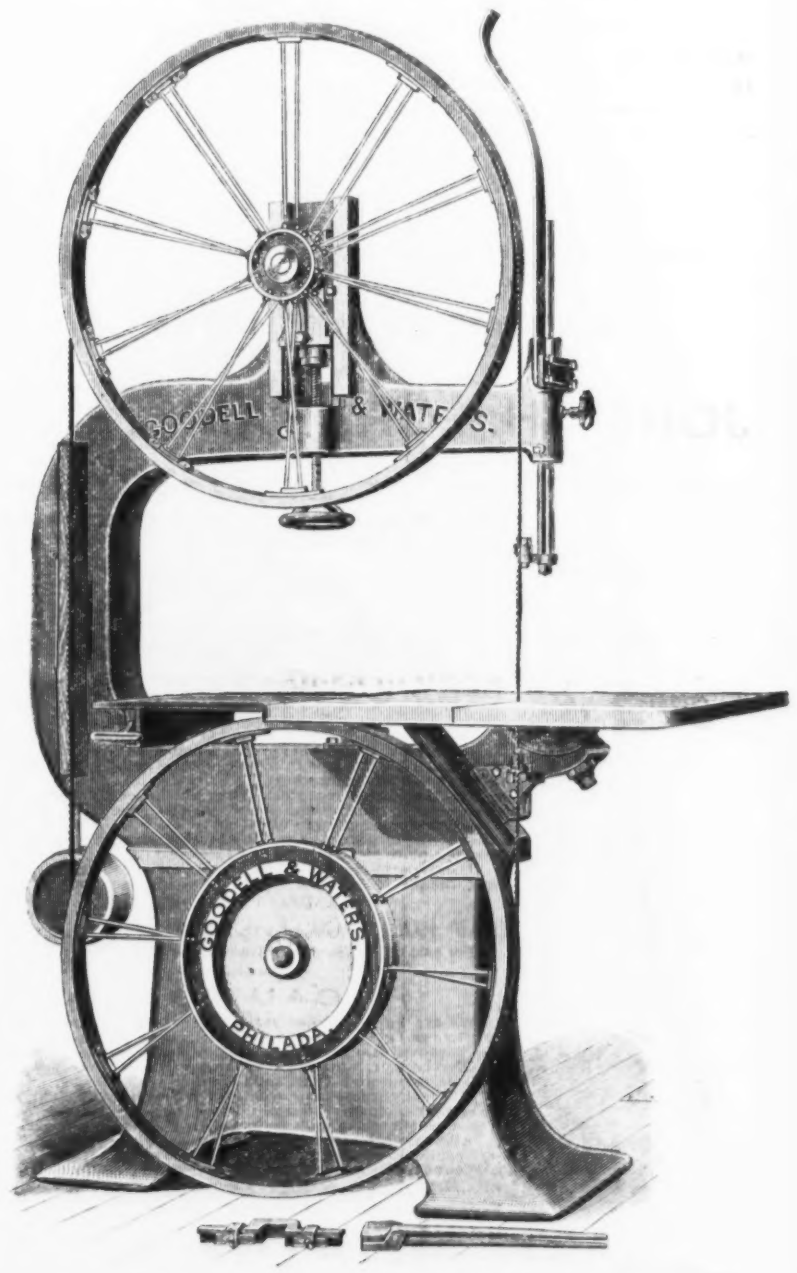
In New Zealand there is no duty or tariff on agricultural machinery and implements imported. Ironmongery or hardware is taxed at the rate of 15 per cent. ad valorem, but this does not include axes, hatchets, spades, shovels, iron chains, artificer's tools, &c. Cutlery, however, pays 15 per cent. ad valorem, but all kinds of farming implements are admitted free; so are all kinds of machinery, whether for agricultural purposes or otherwise. Carts, wagons and drays have to pay a duty of 15 per cent. ad valorem. The tariff of New Zealand applies equally to Great Britain and her colonies as to the United States and other countries.

In Tasmania the duty on machinery is 5 per cent. ad valorem, unless worked by steam or horse power, when it is free. No exceptional advantages are given to British manufactures.

A metallurgical curiosity in the following process of decarburizing iron for the production of steel, steely iron and soft iron has been patented by J. Grottenthaler, of Allegheny, Pa. The iron is melted in an ordinary puddling furnace, and while it is in a molten condition, and after ebullition has ceased, some sulphur is added. The quantity of sulphur to be used depends upon the amount of carbon desired in the product. The sulphur is mixed with the iron by puddling. The inventor states that he accomplishes a threefold purpose by the simple addition of sulphur to the iron, inasmuch as he removes a portion of the carbon, together with the phosphorus and the deleterious oxide. The claim of the patent covers the addition of sulphur to and its mixture with the molten iron. We presume that the learned inventor of this process has previously invented a chemistry of his own. In justice to a benighted profession Mr. Grottenthaler should give it the benefit of the principles by which he has reached the revolutionary process outlined above.

New Band-Saw Machine.

It would seem, from the number of band-saw machines which have already been produced, that it would be practically impossible to discover any new ideas to be incorporated in his useful tool. That it is not impossible, however, to add novel features, and such, too, as are desirable, is evidenced by the new articles of this kind that are brought out from time to time. The illustration below shows a 42-inch machine that has just been completed by Messrs Goodell & Waters, of Philadelphia. This machine has been made from entirely new patterns, and particular attention has been directed to the working parts, which have been made both heavy and durable. The frame is cast in one piece and is firmly bolted to the base. The wheels are 42 inches in diameter, made on the improved bicycle plan. The makers have given a very careful trial to this feature upon their 36-inch machine, and based on their successes in that case are using it in the present article. The rim of the wheel is made of thin strips of wood glued together and turned up on the inside before the spider is put in. It will be seen that there are no joints across the periphery of the wheel. In the case of the wheel springing out of line it can be adjusted by the nuts connecting the spokes at the hub. By this arrangement the wheels can be trued up in case they become irregular in outline without taking them off of the machine. The lower wheel has a heavy center, whereby a steady motion is maintained at all times, and which prevents the machine from starting off on a jerk, which some of our readers know is the cause of breaking many saws. This is a very common fault with many of the machines that are in use. The machine here illustrated is provided with patent compensating wood and rubber cushions, which, working in combination, provide for the rapid expansion and contraction of the saw blade. By this means the blade is kept at a uniform tension, thus reducing the liability of breakages. This the makers consider a very important and valuable improvement in band-sawing machines. The tension of the blade is adjusted by the hand-wheel on the upper frame. The table of the machine is of iron, and is so arranged as to be adjustable for bevel-work. The presser foot is simple and convenient, and will raise 18 inches above the table. The machine is adapted for saws to ¼ inches in width and 21 feet 4 inches in length.



Band-Saw Machine, Built by Goodell & Waters, Philadelphia.

Paris, 1878. *For Superiority.*

McCAFFREY & BRO.,

PENNSYLVANIA FILE WORKS

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Manufacture and keep in stock a full line of **FILES** and **RASPS** only for which we claim special advantages over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade.

Superiority acknowledged wherever used, sold or exhibited.

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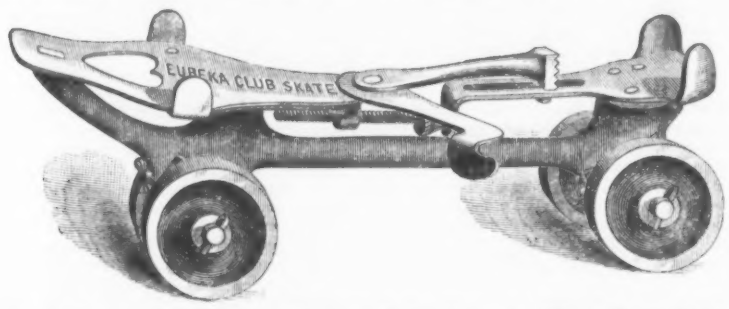

The above cut represents the "EUREKA" Roller Skate, the **Most Complete** and **Most Perfect** in the Market. The clamp and foot-plates are made of Steel. **Simple, Durable** and **Easily Adjusted.**

When fastening this Skate to the shoe, the heel-clamps are stationary. The toe clamps are drawn together, and the corrugated bar pressed back against the heel simultaneously by one motion of the lever, which is under the instep and cannot by any possibility be thrown out of position while skating, making a most perfect and secure adjustment to the shoe.

LIST, $7.00. SPECIAL DISCOUNT TO THE TRADE.

MANUFACTURED BY P. LOWENTRAUT.

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JOHN H. GRAHAM & CO.,

General Agents, 113 Chambers St., New York City.

LIGHTNING HAY KNIVES.

WEYMOUTH'S PATENT.

This knife is the best in use for cutting down hay and straw in mow and stack, cutting fine feed from bale, cutting corn stalks for feed, cutting peat and ditching marshes.

The blade is best cast steel, spring temper, easily sharpened, and giving *universal* satisfaction. A few moments' trial will show its merits, and parties once using it are unwilling to do without it. Its sales are fast increasing for export as well as home trade, and it *seems destined* to take the place of all other Hay Knives.

They are nicely packed in boxes, one dozen each of 50 pounds weight, suitable for shipping by land or water to any part of the world.

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For sale by the Hardware trade generally.

CAUTION:

We are informed that various parties are infringing upon the widely known Letters Patent granted originally to George F. Weymouth, for an improved Hay knife.

The characteristic feature of the invention is a curved blade, provided with saw-tooth cutters, and furnished with suitable working handles. It is our purpose to prosecute all infringers of our patent, and we have already commenced one suit, which is nearly ready for hearing, and are about commencing suits against other parties.

All manufacturers are hereby warned of our rights, and the public are cautioned against purchasing any Hay "Saw Knives" which are not of our genuine manufacture

HIRAM HOLT & CO.

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Steel Stencil-Cutting Dies, Soap Moulds and Brass Stamps.

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Cross or Crossing,
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Flat Wood,
Gang Edger,
Ginsaw,
Gulleting,
Half-Round,
Half-Round Wood,
Hand,
Hand Equaling,
Handsaw Blunt,
Handsaw (Double-Ender),
Handsaw Taper, single-cut,
Handsaw Taper, double-cut,
Handsaw Taper, slim,
High Back,
Hook Tooth,
Knife,
Knife Blunt,
Lead Float,
Lightning,
Machine Mill,
Mill,
Mill Blunt,
Mill Pointing,
Pillar,
Pitsaw,
Reaper,
Roller,
Round,
Round Blunt,
Slotting,
Slim Handsaw Taper,
Square,
Square Blunt,
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RASPS.

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Bread,
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All descriptions of Files made to order. Price List mailed on application. **Established 1863.**

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Manufacturers of

FILES AND RASPS

Made from the Best Refined Cast Steel.

In offering our goods we guarantee to give satisfaction, each File being thoroughly examined at every stage of manufacture and tested by an expert before leaving the works.

We are continually increasing our facilities and are prepared to fill orders promptly.

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Manufacturers of all kinds of

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No. 29 Murray Street, New York,

Manufacture and sell the following celebrated brands of Sporting Powder known everywhere as

ORANGE LIGHTNING,
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more popular than any Powder now in use.

Blasting Powder and Electrical Blasting Apparatus.

Military Powder on hand and made to order.

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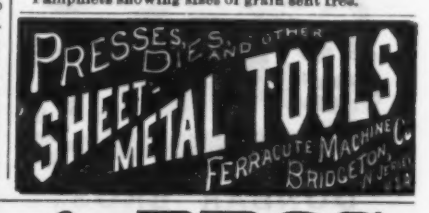
Pamphlets showing sizes of grain sent free.



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Made of Solid Best CLAY CRUCIBLE CAST STEEL of our own manufacture, and warranted to be unequaled in the market. For sale by Iron and Hardware dealers throughout the United States and Canada.

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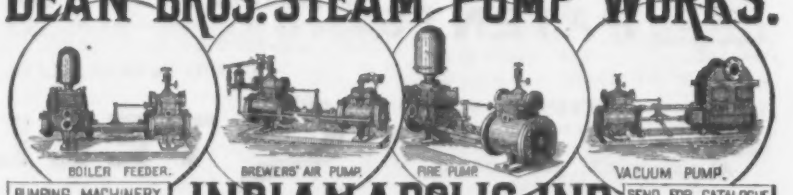

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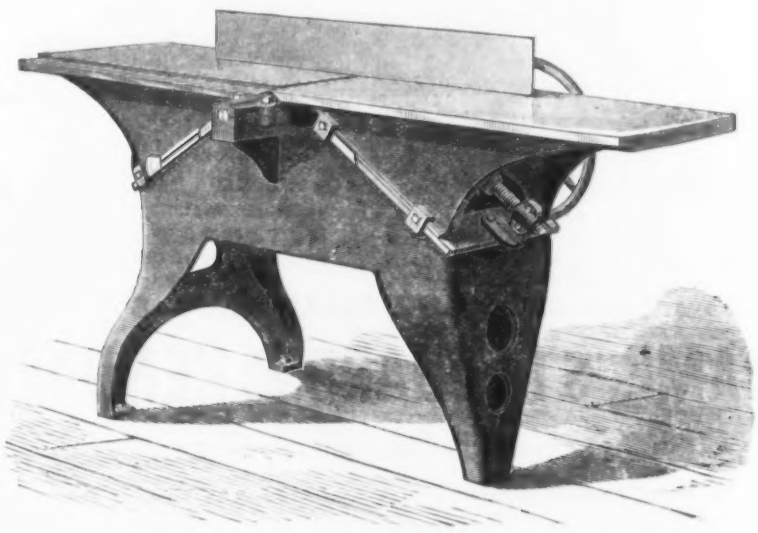
A New Buzz Planer.

The accompanying illustration represents a hand or buzz planer recently brought out by Frank H. Clement, 131 Hill street, Rochester, N. Y., and which has been named the "Perfection." Probably no wood-cutting machine is coming more rapidly into use or meeting with more general favor than the hand planer or jointer. For squaring, smoothing, taking out of joint, glue jointing, beveling, chamfering and various other similar kinds of work no other machine can take its place. The frame of this machine, as may be seen from the engraving, is cast in one piece. It is heavy and strong, and has three points of bearing on the floor. The tables move on continuous inclined ways, and are double-ribbed in both directions. The cutter-head is a solid steel forging with bearings 5 diameters in length, and provided with self oiling boxes. The rear table has a rabbeted groove ⅝ inch deep, and an adjustment for making hollow glue joints. By a special system and tools which the manufacturer employs the frame and tables are planed absolutely exact, so that no further fitting, adjusting or lining up is required. Three sizes of this machine are made, namely, 10-inch cut, 15-inch cut and 20-inch cut. The special advantages to which the maker directs attention are as follows: There are no links, wedges, pin joints or eccentrics under the table to get out of adjustment or wear slack. The frame resting on three legs makes it impossible to strain it or twist the machine by bolting down to the floor or by the settling of the building. There are no projecting flanges for the operator to tread upon. By means of the large hand-wheel at the right, the working table can be moved instantly either way without requiring the operator to change his position in the least. The design and method of fitting up are such that the tables must be true and remain so. They cannot twist, rock, strain or be displaced.



A NEW BUZZ PLANER.

Gun-Bursting Experiments.

Referring to the subject of obstruction in gun barrels, and their effects, briefly described and illustrated some weeks ago, an account of the experiments made to elucidate the cause of the explosion of a 6-inch gun on board the British ship Active, spoken of at the time, is of the greatest interest. It will be remembered that—considering the disastrous effects of almost insignificant obstructions in the barrels of small firearms—we suggested the possibility of similar results with heavy guns, and remarked that investigation in this direction would no doubt supply valuable information.

The experiments, or at least some of them, have now been concluded, but, contrary to general expectation they have yielded altogether unlooked for results. The trials were made at Woolwich, England. The tendency of the shells to break up in some of the rounds fired was considered as evidence that there was an increased strain in proportion to the increase of the obstruction in the bore, although some of the test committee were of opinion that the wedges placed in the gun had been blown out, and had never been overtaken by the projectiles. The general impression, however, was that the wedge would not have time to move before the shot was upon it, but that it would be either carried along by the shot, or, being only of wrought iron, would be broken to atoms. Hence it became desirable, if possible, to recover the wedges, or such fragments of them as remained; but, though diligent search had been made in the sand bank, not a trace of the wedges had been found. The committee therefore decided to do what they could in the future rounds to intercept the wedges, but their attempts, which consisted simply in placing planks and layers of millboard in front of the muzzle, were unsuccessful beyond showing that the obstructions must have disappeared under considerable force. If dislodged by a mere puff of air or gas, they would probably have been intercepted by the screen; but, although much of the sand was shifted, no signs of them were discovered. The first wedge used was a flat spike about 5 inches long and ¼ inch deep at the thickest end. The gun was loaded as before, with a half charge of powder, which burst the Active gun, and the same description of projectile, a water shell of 100 pounds weight, was fired, the operations being directed by the proof officer, Major Hemans, Royal Artillery. The new butt has been squarely built of sand bags, roofed over by transverse layers of timber. The gun was fired by electricity. A long time was occupied in seeking for the wedge and the shot, but to no purpose beyond tracing the latter to a spot 4 or 5 feet under ground, where it cannot be got at without a day's labor. Then a second round was fired with a slightly-increased wedge, one having a depth of .3 inch. The result of the round was the same, the gun standing the test without any damage. In both these rounds a little lacquer was used to make the obstruction adhere to the bore of the gun, but it seemed to make no difference, and the committee adjourned to consider the best mode of carrying out the further trials.

During the progress of later experiments (January 24), some definite information was gained by the committee. A shell fired with a wedge of .3 inch in the gun was recovered from the butt, and showed for the first time a positive evidence of having been in contact with the wedge. After much sifting of sand the wedge also was found. It was elongated about ¾ inch, and had taken the shape of the rifling groove on the driving side. These appearances proved that the encounter of projectile and obstruction had been violent, but the gun still showed no sign of injury. The next experiment, of placing in the bore a steel spike ½ inch thick at the head, was watched with special curiosity. The gun was fired, and the eager investigators ran into the bursting chamber—to find the gun still intact. Even an impression of the bore taken in gutta-percha showed no symptom of injury, and it was thought doubtful whether the shot could have touched the wedge, until, by lucky chance, the wedge itself was picked out of the butt, and found to have been scored and grooved, just as was the wrought-iron one, but not stretched out to any appreciable extent. The experiments were again adjourned. On January 26 the expedient of placing a steel file in the bore of the gun was adopted. The file used was 7 inches long by 5 inches broad, on one side flat and on the other rounded. Its maximum thickness was about ½ inch, and although it lay easily in the rifle groove, which is ¾ inch wide, with the shank pointing up the gun and the round side underneath, it appeared to present a really serious obstacle, which, considering that it was steel of the hardest quality, was regarded as very likely to burst the gun. Looking down the bore, however, from the breech end, before the weapon was loaded, the obstruction could scarcely be discovered. The file was highly bedded in lacquer, and placed about 30 inches from the muzzle, or about 15 feet from the breech end of the gun. All being prepared, the conical shot was fired, but the gun did not burst. The groove, however, in which the file had been aid was perceptibly scored for a considerable length, and the impression taken in gutta-percha showed not only the principal scratch, but several smaller ones. The shot, also, when dug out of the butt, had a wound stretching from the shoulder down the body for some inches, and other marks about it which were explained when the remains of the file, shattered into small fragments, were found in the sand. The pressure on the base of the projectile was only normal—4.2 tons per inch. Further experiments were postponed.

The experiments were concluded on January 28, two decisive rounds under very severe conditions completing the series. A steel rimer was placed in the bore of the gun upon a good bed of lacquer. The rimer, an instrument used by ship's armorers to clean out the vents of guns, was nearly 6 inches long, pointed and square-sided and about ⅓ inch in thickness. Its weight was 1¼ ounces. The same place as before—30 inches from the muzzle—was the position assigned to the rimer, but the groove which was damaged by a file in the previous round was avoided, and the implement laid along the groove adjoining, with the point toward the shot. The gun was fired, and, to the surprise of many present, was again found whole, but the second groove was perceptibly scored, and the shot, when dug out of the butt, exhibited a deep abraision where it had plowed over the obstruction. The rimer itself was not recovered. The more formidable trial was then to come. A cold chisel was handed round, and weighed and measured. Its weight was within a small fraction of a pound, it was 7¾ inches long, rather more than ¼ inch broad at the blade, and nearly ¼ inch in thickness everywhere. The sharpened end, which was highly-tempered steel, and tapered off for a length of 3 inches, was laid up the bore, and, looked at through the breech, the chisel was generally regarded as so prominent an object that it was almost impossible that it could escape detection. If that did not twist the gun it was the unanimous opinion of the spectators that no reasonable obstacle would do so. But it also seemed to be the opinion of the spectators that reasonable conditions had been passed, and that the gun, taxed beyond endurance, must now give way. When it was fired, and some fragments flew upward from the skylight, everybody thought the end had come, but the fragments were seen to be mere splinters of wood, and everybody was soon praising the gun, which had passed even its greatest ordeal without flinching. At first it was suggested that the chisel might have kicked out by the first contact with the shell, and that there could have been no actual struggle between them, but a

INFRINGEMENT OF JOHN WILSON'S TRADE MARK, MASSACHUSETTS, U.S.A

JOHN WILSON'S
BUTCHERS' KNIVES,
BUTCHERS' STEELS,
and
SHOE KNIVES.

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REGISTERED IN ENGLAND, WASHINGTON, U.S.A., AUSTRALIAN & OTHER BRITISH COLONIES, & GERMANY.

ACKNOWLEDGMENT AND AGREEMENT.

"WHEREAS, I, GEORGE A. ROBINSON, of West Mansfield, County of Bristol, State of Massachusetts, have heretofore manufactured and sold certain Knives bearing a Mark which is claimed to be an imitation of the trade-mark owned by John Wilson, of Sheffield, England, which consists of four peppercorns and a diamond, under the mistaken belief that I had the right to do so.

NOW, This, is to Witness, that, in consideration of the forbearance of the Representatives of the said John Wilson to sue me for damages for the wrong aforesaid, I do hereby undertake and agree,

FIRST, to surrender and deliver to the Attorneys for the said John Wilson, all knives now on hand, and in my possession, or under my control, bearing the said imitation trade-mark, and

SECOND, I further undertake and agree to and with the said John Wilson, and his legal representatives, not to manufacture or sell, or cause to be manufactured or sold, at any time in the future, Knives or other Cutlery, bearing his trade-mark aforesaid, or any imitation or simulation thereof. IN WITNESS WHEREOF, I have hereunto set my hand and seal at West Mansfield, aforesaid, this thirty-first day of May, 1883.

WITNESS:—
E. M. REED."
(Attorney for Defendant.)

G. A. ROBINSON. L.S.

Imitation ☆O J.WILSON SHEARSTEEL Mark.

WORKS:—SYCAMORE ST., SHEFFIELD, ENGLAND. Established 1750.

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Successors to BRADFORD & ANTHONY,

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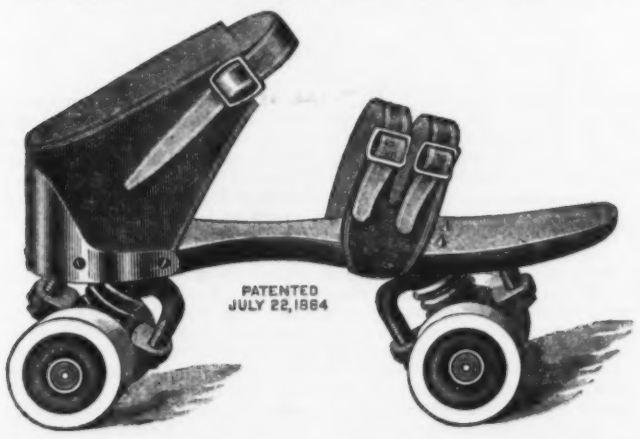

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Twenty-Five Per Cent. More Sugar and a Better Quality

SPOUT NO. 1.
Actual size, with heavy Wire Hanger, that does not break like Hangers cast on a spout

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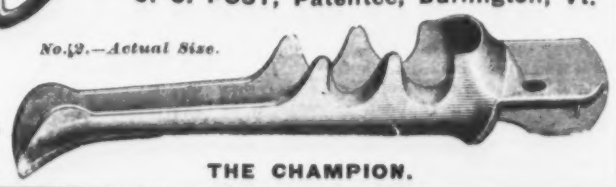

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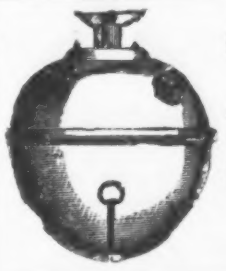

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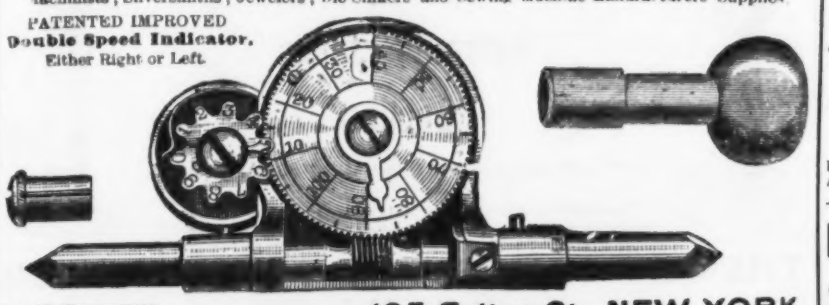

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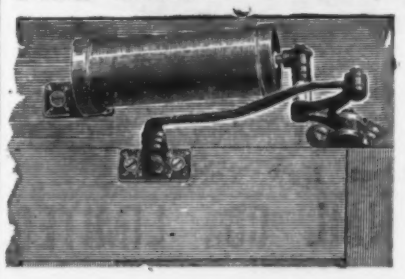

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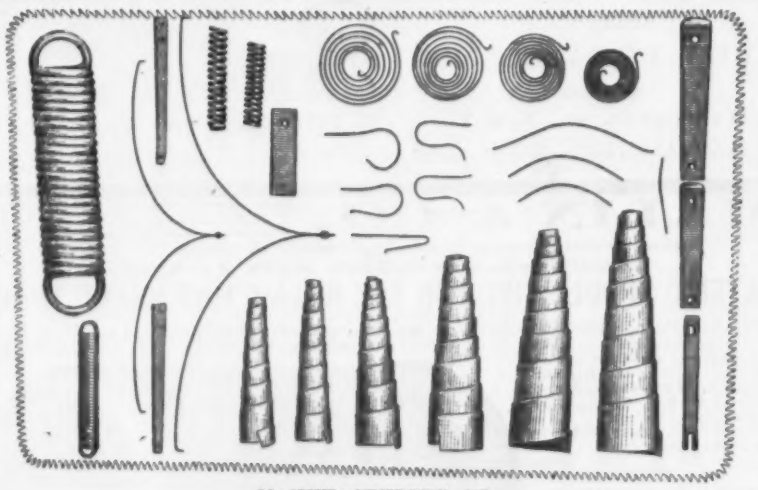

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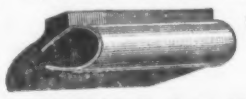

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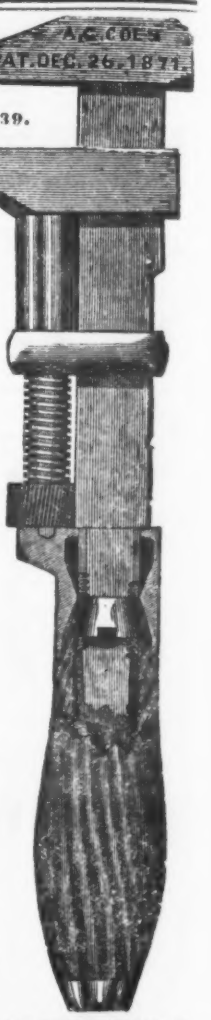

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search brought out some witnesses. These were the fragments of the shell, for it was broken up into many small pieces, and one of these, which was part of the conical head, bore a distinct mark of the chisel. The chisel could not be found, and some evidence is therefore wanting, but the experiments have, it would seem, conclusively disproved the theory of gun-bursting by wedges. It is now proposed to distort the barrel of the experimental gun by letting it fall from a hight and by dropping heavy weights upon it, distortion having been suggested as the origin of the explosion, and the experiments may at some future day be resumed.

English Letter.

(*From Our Regular Correspondent.*)

LONDON, March 2, 1885.

THE WEEK

has been very eventful in a political sense, the present ministry having had an extremely narrow escape of being defeated in a vote of censure, with some probability at the time of writing that we may have an early dissolution and general election. That prospect is not at all calculated to improve the trade outlook in any way, seeing that a general election with us means very much the same thing as does the Presidential contest with yourselves—and you know only too well the import of that sort of disturbance. Besides this, the general political outlook is very stormy, the thinly-veiled hostility of Prince Bismarck being only a few removes better than the jealousy of France and the new movements of our traditional enemy, Russia. In the political atmosphere, indeed, there is nothing calculated to promote or comfort commerce, but rather the contrary. We have "wars and rumors of wars" on all sides, and our Government is making all sorts of preparations on such a scale that the knowing ones, to say nothing of simpler folks, think there is more afoot than meets the eye. On the other hand, the expenditure on behalf of the Soudan expedition is benefiting several branches of trade, such as the harness, sword, accouterment, camp fittings, &c., departments, while the suddenly-projected line of railway across the desert from Suakin to Berber is the cause of activity among the rail mills, pipe foundries and manufactories of cisterns, tanks, &c. The locomotive works and railway-plant concerns are also benefiting, but the spurt is not likely to prove lasting—indeed, many practical men characterize the construction of 260 miles of railway under a burning tropical sun, across a desert inhabited only by hostile savages, as a piece of folly which will never reach its ultimate stages. Be that as it may, we learn that Messrs. Worthington, your pump-makers, are supplying some of the pumps, &c., required, and we are told that 4-inch pipes are also to be sent from your side. Personally, I cannot credit the news; but, if it be true, I have not the slightest doubt that a pretty rumpus will ensue among our own pipe founders—to say nothing of the pump manufacturers. Four-inch cast-iron pipes can be bought here at £4, say $20, ₱ ton, and, at a rough guess, I should suppose your founders would want $30 for the same thing, independently of the cost of freight, insurance, &c. Of this we shall no doubt hear more anon—very likely a good deal more.

Meantime, as you will note from the more detailed portions of this report, there is really little change to note in the general condition of trade in this county. In the iron branches the chief occurence is the decision of the Cleveland ironmasters to continue the former restriction arrangement until stocks decrease or there is an improvement in trade. It had been expected that an additional limitation would have been imposed, but the Cleveland ironmasters are evidently of opinion that they are already doing all that is possible, and they are probably well advised in not endeavoring to project more in theory than they can enforce in practice.

A significant sign of the times, and an indication of what may be expected shortly, is forthcoming in the shape of the resolution of the colliery proprietors of South Yorkshire and Derbyshire to enforce a general reduction in wages to the extent of 10%. They have held several meetings on the subject, and announce that they have no alternative but to lower wages; either that or the pits must be closed, as prices were never so low and the output is considerably in excess of the demand. The men are up in arms against the proposal and declare they will resist the reduction to the uttermost. About 45,000 of them will be directly affected, but the fight—if fight there is—will really represent a struggle between the whole of the colliery owners on the one side and all the operative miners on the other side of the entire country. Such a contest would be most severe, and it is to be hoped that it may not take place.

THE IRON MARKET

has been a trifle steadier, mainly on the strength of the better report from the United States, but the general condition of the trade has not undergone any change, and is still extremely quiet in all directions. I have at present no details of the reasons which have led the American Iron and Steel Association to predict a revival, nor does the latest news from the States indicate that any change of importance has occurred. I can only assume, therefore, that your spring trade has not set in as yet, and that the expected movement will be of a gradual character. In the North of England the decision of the Cleveland ironmasters has been awaited with some anxiety, and surprise is expressed that no additional restriction is imposed. It is regarded as satisfactory, however, that the present rate of production is to be continued, and it is seen that the imposition of a further limitation of the make would have been very difficult to carry out in practice, however easy it might have appeared in theory. There had been an impression that a formal restriction of the make would have been adopted in Scotland, but the ironmasters there appear to be satisfied with the voluntary reduction in the output which has been in force for some months past, and do not seem to regard the rapid increase of stocks with much apprehension. It is stated, indeed, that the increased reserves chiefly consist of the commoner grades of iron, and that very little more of the special brands is being made than is disposed of to consumers and shippers. At Glasgow there has been more life in warrants this week, and numerous transactions have taken place at higher values, the closing price being 41/6½ ₱ ton. Makers' brands of Scotch pig are mostly unchanged, although shipments are relatively light, and the stocks are growing much heavier

At Middlesboro' pig iron is sluggish, and the nominal rate for No. 3 is 34/6 ₱ ton, although reports are freely circulated of sales by merchants at 3d @ 4½d below that limit. At such values it is plain that there can be but a very bare margin of profit for the smelters; hence we may anticipate that the make will not be pushed to extremes, especially as stocks are large and foreign shipments light. On the West Coast there has been no sensible variation in hematite pigs, but business in that respect is not brisk, and it needs all the efforts of the smelters to uphold values at 43/6 @ 44/ for mixed lots in usual proportions. A fair number of deliveries are being made, but the total production is still outside the consumptive requirements of the market; consequently stocks are also increasing thereabouts. Elsewhere crude irons are easy and nominal, and buyers in the open market have every facility for supplying their wants on favorable terms. In heavy manufactured iron there is no alteration. The wire mills remain very poorly engaged, and prices are greatly depressed. In galvanized sheets there is a moderate amount of business, but values are irregular, and nothing definite seems to have been done as yet in the way of reorganizing the association.

Ordinarily finished iron is quiet and irregular at late rates, all of which are purely nominal. The demand runs on the cheaper sorts of bars, hoops, angles, strips, &c., both in the home and export departments. A fair bar is obtainable at about £5. 7/6 @ £5. 12/6, and common Welsh are selling at £4. 17/6 @ £5 ₱ ton. Scotch bars at £5 7/6 @ £5. 17/6; plates, £5. 17 6 @ £6. 7/6; railroads, £5. 15/ @ £6. 10/; angles, £5. 10/ @ £6. 10/; boiler plates, £6. 5/ @ £7; sheets, £6. 10/ @ £7. 15/; hoops, £6. 10/ @ £6. 15/, and cast-iron pipes for gas or water, £4 @ £5 ₱ ton. Old materials are quiet; D. H. iron rails at £2. 10/ @ £2. 15/; No. 1 heavy-wrought scrap, £2. @ £2. 2/6; old boiler tubes, £2. 5/ @ £2. 7/6, and cast iron, £2 @ £2. 2/6, all f.o.b. London or other good British port. Freights are steady and firm to the East, but quiet and easy to Transatlantic ports. Pig iron by ordinary steamers, Glasgow to New York, is about 1/ ₱ ton, and from Liverpool about the same. Steel is quiet in all directions, without any appreciable changes at Sheffield or elsewhere. A few firms are fully occupied, but the general run of the crucible-steel trade is only indifferently engaged. Old leaf spring steel is £2. 7/6 ₱ ton. Crop ends are steady. Steel rails are again unaltered, on the basis of £4. 15/ ₱ ton for ordinary heavy sections. Some of the mills are well employed, while others are on short time. The rails for the Suakim line are being rolled by Cammell & Co., and 25,000 tons will be required altogether, but only a portion has been ordered at present.

SCOTCH PIG IRON

has been the medium of rather more speculation in warrants since my last, but makers' brands have not undergone much change and are about as named below in point of values There are now 93 furnaces at work in Scotland, against 97 this date last year. In Connal's stores there are 587,018 tons (an increase of 1666 tons last week), as compared with 593,242 tons same date in 1884. Shipments to date are 61,103 tons, or 13,784 tons behind those of last year, while the importations of Middlesboro' pig iron into Scotland have increased by 22,733 tons on a total of 69,383 tons. Current prices:

Deliverable alongside.	No. 1.	No. 3.
Gartsherrie, at Glasgow	52/	46/6
Coltness, "	55/	50/6
Langloan, "	54/6	51/
Summerlee, "	51/6	46/6
Calder, "	52/	46/6
Carnbroe, "	49/	45/
Clyde, "	47/	43/
Monkland, "	42/6	40/
Quarter, "	42/	39/6
Govan, at Broomielaw	42/3	40/
Shotts, at Leith	51/6	51/
Carron, at Grangemouth	....	47/
" " specially selected	52/6	....
Kinneil, at Bo'ness	44/6	43/6
Glengarnock, at Ardrossan	48/6	42/6
Eglinton, "	43/	39/6
Dalmellington, "	47/	43/6

MIDDLESBORO' PIG IRON

has not been strengthened by the prolongation of the restriction agreement; indeed, there are rumors of sales at as low as 34/ from second hands, and the market generally has no backbone. Quotations for G. M. B., f.o.b. at makers' wharves in the Tees, less 2½ for net cash on 10th of following month, are:

No. 1 Foundry	37/6	Mottled	32/9
" 2 "	36/	White	32/6
" 3 "	34/3 @ 34/6	Refined Metal	50/
" 4 "	33/9	Kentledge	36/6
" 4 Forge	33/3	Cinder	31/6

HEMATITE PIG IRONS

are about as last week, but there are reports of better sales, and there is an anticipation that values may stiffen shortly from the following West Coast rates:

	No. 1	No. 2.	No. 3.
Cleator	45/6	45/3	45/
Lonsdale	45/6	45/	44/6
Workington	45/	44/6	44/
West Cumberland	45/	44/6	44/
Lowther	45/	44/6	44/
Distington	45/	44/6	44/
Harrington	45/6	45/	44/
Solway	45/	44/6	44/
Maryport	45/	44/6	44/

TIN PLATES.

In London the tin-plate market may be described as steady, but rather quieter. Makers are holding out for higher terms than buyers seem disposed to give, and as the American demand has apparently been covered for a short time there is no immediate hurry to place orders except on favorable terms. Only a portion of the works are reported well booked ahead, but most are fairly well employed at the moment. We quote ordinary IC cokes, 13/9 @ 14/,

according to brands; do. wasters, 13/ @ 13/6, and steel plates with coke tinning, 14/ @ 14/3, all f.o.b. Liverpool. At Liverpool it is difficult to gauge the exact state of the market this week, but it is certain that the late briskness in the demand is not being maintained, and certainly if the demand is somewhat less the business resulting is much less still. The attitude assumed by both buyers and sellers is a curious one. It is a sort of watching attitude; there seems to be a fear on the part of sellers to quote anything but much higher figures than have been maintained lately, and then again, on the other hand, buyers do not show any disposition to meet sellers to anything like the extent that may well be reasonably expected. Makers, however, as a rule, are pretty well filled up with orders, at least sufficiently to carry them over March, and most of them until quarter day, which will take place early in April next. The demand for steels of various kinds continues the prominent feature of the tin-plate business, though coke tins have not been by any means neglected. Most of the steels inquired for were, however, in the second grade, viz., Bessemers with coke finish. The bulk of these, however, were confined to three or four sizes, such as 14 x 20, 19¼ x 14 and 10 x 20. There were also some few inquiries for odd sizes and squares. The difficulty, however, has been in the price, buyers' ideas being 14/ IC, and it is this they are offering, while makers are holding out for 14/3 @ 14/6 IC. A great deal more business might have been pulled through were it not for this divergence of view between the two parties. Some business was done at the medium figure, but little, if any, at the higher, unless they were exceptionally high-class brands. There has not been so much doing in best steels (Siemens) with coke finish as there has been in Bessemers; the inquiries are fewer, but prices are firm at 15/ @ 15/3 IC. There continues a very good demand for coke-tin wasters, and ordinary kinds sell freely at 13/, and the better sorts at 13/3 @ 13/6. The demand for charcoal tins is a very restricted one this week; few specifications of any kind are to hand, and but little business has resulted. The prices have not, however, been affected, as a rule. There is a fair demand for ternes, and buyers seem anxious in some cases to place lines for forward delivery, but are reluctant to improve prices. Some few orders have been booked at slightly better figures—13/9 @ 14/ already—and we may confidently expect better prices shortly. The tin-plate market, as well as that for terne plates, may be said to be quiet but steady, with prices, on the whole, firm.

High-Pressure Boilers for Iron Works.

In a paper entitled "The Economy of Fuel as Dependent Upon the Engines and Boilers Used in the Development of Steam Power," read by Mr. P. Barnes, before the New York meeting of the American Institute of Mining Engineers, the following suggestions are made in speaking of a boiler designed by Mr. Allan Stirling, of New York, with special reference to the employment of high pressures in connection with compound engines as the means of lessening the waste of fuel in our metallurgical establishments:

In locomotives the compact box form of boilers has been continuously employed, and the absolute limit of track gauge is leading to a wider use of the flat, stayed surface of the high pressures now so common in locomotive practice. The possibility, thus rendered complete, of a safe dependence upon the tensile strength of stay bolts is of the highest importance. No combination of riveted joints can be made which shall not depend in large part upon such staying of flat surfaces, and the interest of safety and economy in high-pressure construction clearly points to an abandonment of unstayed surfaces of any description. Another essential point in boiler construction should be named, for it is of vital importance in the maintenance of the strict economy of operation. This is the need of a large separating surface at the water-level within the boiler, at and through which, over its entire area, the steam may be quietly liberated from the body of water within which in minute bubbles it is generated. This is needful in order that the quantity of heat transferred from the boiler to the engine may be simply, and only, that due to the quantity of steam withdrawn, and not that far larger quantity also which is due to presence in the steam of even a small fraction of suspended water. This water, when thus led away, acts as a hurtful absorbent of the heat developed in the burning of the coal, and this proportion of heat is wholly lost, so far as the subsequent production of useful work is concerned.

The adoption of a flat-sided box outline with stayed surfaces for the body of a boiler clearly suggests the use of water tubes for heating surface which shall be wholly external to the box, and thus fully exposed not only to the radiant heat of the fire, but also to the sharp contact of the currents of heated gas from the fire. In other words, the work of the boiler should be done by the exposure of the whole of the tube surface to a quiet bath of intensely-heated gas in an inclosing brick chamber, from which there shall be withdrawn, through a close damper, only so much of this gas as shall insure the maintenance of the whole at the full intensity due to the limit of pressure which must be preserved.

This combination suggests to the experienced man the simple drop tube, so long and favorably known with the internal feeding or circulating tube, by means of which the tidal circulation shall be maintained within the boiler, which secures the persistent sweeping of the heated surfaces with large volumes of solid water. Thus the bubbles of steam are pushed up into the steam space, and the hot tube surfaces are kept covered with compact bodies of water in the best form to insure the prompt and the most complete absorption of the heat from the gas which envelopes the tubes. Thus it becomes possible to construct a boiler up to a capacity of several hundred horse-power in which the pieces of plate employed need not exceed four in number, and in which also the stays shall be of the simplest, most fully approved, kind.

Brief mention may be permitted of the possible need of greater watchfulness in the prevention of incrustation in boilers which are designed for higher pressures, and which must be therefore subject to a higher heat. Obviously the time-honored remedies, or means of prevention, for this somewhat persistent evil are as applicable to this case as to any, however new may be the details of experience or management likely to be developed. This important consideration is worthy of note that, if the work of the boiler as a whole is done so economically as it may be through the use of the compound engine, a much larger loss of heat may be reasonably tolerated through a more frequent blowing down and refilling of the boiler hour by hour, as the advancing saturation of the water may indicate. It is certainly true that, if as much care and exact attention were devoted to this blowing down during working hours as is given by a skillful attendant to the feeding, some handsome gains of safety and durability would be made. No just reason can be given why this should not be expected and rigidly insisted upon, whatever may be the pressure carried or the amount of work done by the boiler, so long as there is the slightest reason for suspecting the presence in the feed-water of any appreciable proportion of incrusting matter. It is clear, however, that only the least useful result can attend the somewhat common practice of feeding and blowing out through the same connection to the boiler, especially when a mud drum is used, into which it is expected and supposed that the particles of sediment shall be gathered. The true thing to be done is simply to wash out the boiler while under pressure and at work in the same way and by the same means as would be used if the whole were at a standstill and open, so that a hose and an open jet of water could be used—that is, the blowing down at regular intervals and the corresponding feeding, with the resulting tendency to a complete sweeping of the surfaces, afford a means of definite and high value of keeping a boiler clean if persistently and skillfully practiced. If in addition to this well-directed effort in the case of any high-class boiler the additional safeguard be present of a detail or element of construction such as shall promote or insure this constant sweeping of the heated surfaces, a means is secured of the very highest value of increasing both the efficiency and the durability of the whole. The drop tube, which has been suggested as a detail of great value in this study of a high-pressure boiler structure, has a very clearly-marked and conclusive record as tending to prevent the fixing on the heated surface of incrusting particles. The sharp circulation within the tube, directed so persistently against the lower or exposed end, appears under very trying conditions of practice to insure completely the maintenance of the surfaces in the most perfect and unobstructed condition. In fact, instances are on record in which the incrusting salts and other sedimentary matter have been persistently thrown out of these tubes and over into the water legs, in marine boilers, to such an extent as to cause injury to the plates in these legs, while the tubes themselves have remained perfectly free and clear.

The impression is not well founded that a much higher degree of skill is needed in the attendants who are placed in charge of compound engines and high pressure boilers. Hundreds of locomotives can be found in which the carrying in ordinary work of 150 to 160 pounds pressure is an every-day occurrence, and in which is developed, at speeds which are not excessive, fully 750 to 800 horse-power. The locomotive men who manage these engines and boilers would not claim for themselves, as a class, either that they are persons of extraordinary skill, or that, on the whole, they would be either unable or unwilling to take charge of any other type of engine of equal or greater power. In other words, there are the best reasons for believing that with the highest grades of steam machinery, no difficulty will ever be encountered through lack of attendants. The possession of ready wit and reasonable faculties only is required, such as can be found any day by the same prudent selection which is made in the choice of men in other kinds of business which involve the care of interests of equal importance or value.

The Fall in Prices Since 1875.—In a carefully prepared table published in a recent number of the London *Economist* we find the following comparative statement of the wholesale prices of staple commodities in the London market, according to the British gold standard, at the dates specified:

	Jan. 1, 1875. £	s.	d.		Jan. 1, 1885. £	s.	d.
Coffee, per cwt.	4	3	0	@	2	0	0
Sugar, per cwt.	1	4	0	@	0	9	6
Rum, per gallon	0	3	8	@	0	2	4
Tea, per pound	0	0	10	@	0	0	5½
Tobacco, per pound	0	0	6	@	0	0	4½
Butter, per cwt.	6	10	0	@	5	1	0
Wheat, per quarter	2	4	0	@	1	11	11
Potatoes, per ton	5	10	0	@	3	10	0
Prime beef, per 8 lbs.	0	5	2	@	0	4	4
Prime mutton, per 8 lbs.	0	4	10	@	0	4	2
Pork, per 8 pounds	0	5	0	@	0	3	0
Raw silk, per pound	0	10	0	@	0	8	0
Flax, per ton	45	10	0	@	30	0	0
Hemp, per ton	33	15	0	@	29	10	0
English wool, per 240 pounds	18	5	0	@	11	5	0
Leather, per pound	0	1	10	@	0	1	7
Copper, per ton	92	0	0	@	53	0	0
British bar iron, per ton	9	7	6	@	6	0	0
Pig lead, per ton	24	0	0	@	11	5	0
Tin, per ton	101	0	0	@	77	5	0

London being the central market of the world, these prices may be fairly taken as representing the true market value, in gold, of each article. The comparison makes very plain the great increase since January 1, 1875, of the purchasing power of gold.

The first patent granted to an inventor in the United States is mentioned in a speech of ex-Senator Wadleigh, of New Hampshire, in the Forty-fifth Congress. The Senator said: "An intelligent gentleman of my own State has referred me to an act of the general court of Massachussetts Bay, passed in 1646, granting to one of his ancestors, Joseph Jenks, the exclusive right of making and selling his improved scythe for the term of 14 years. That, I think, was the first patent granted to an inventor in America. The improvement referred to changed the short, thick, straight English scythe into the longer, thinner, curved implement, with stiffened back, now in use."

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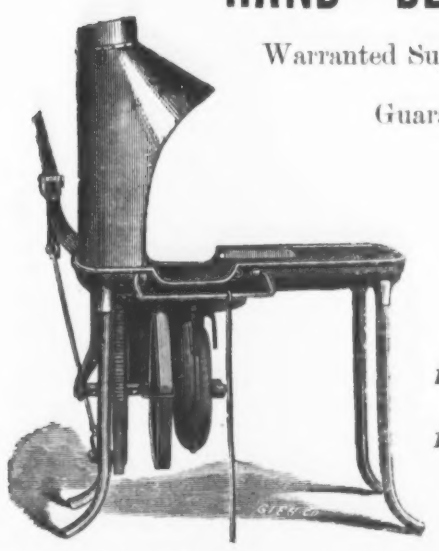

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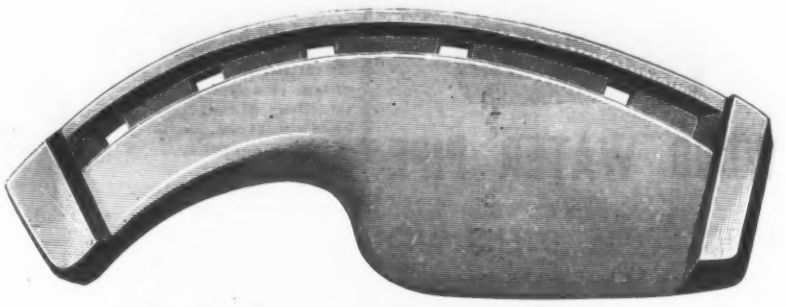

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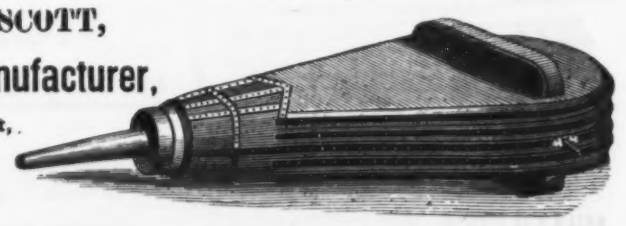

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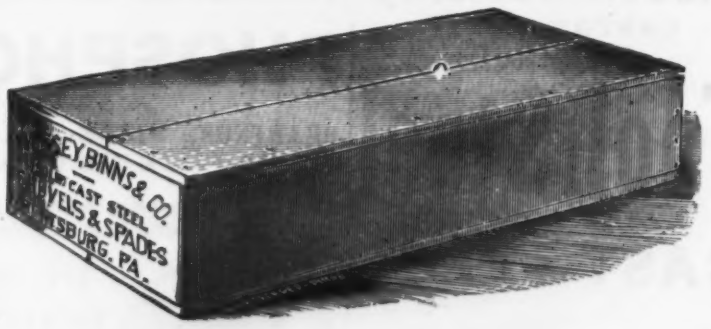

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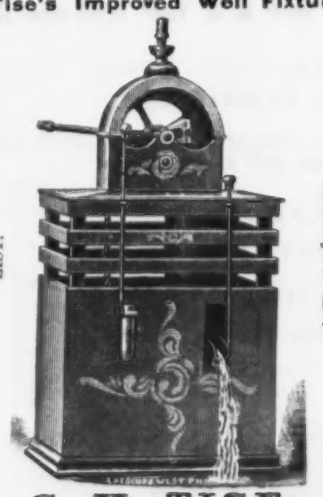

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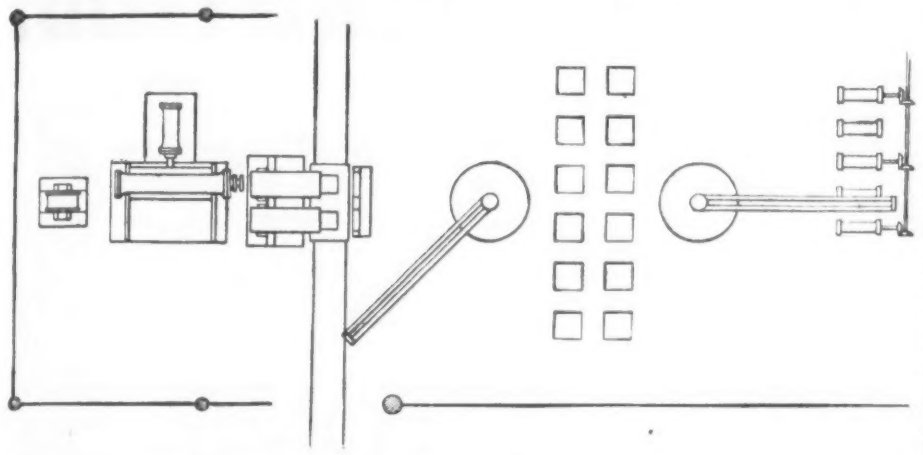
(*Concluded from page 1.*)

right moment. The mold, before falling upon the carrying-bar C, touches the pin D, which, through the underground lever E, causes the face-plates F to rise against the sides of the car B. The cylinder P is then made to push out the ingots, which pass over the roller R on to an ingot car if the ingots



The Laureau Bessemer Plant Without Casting-Pit.—Fig. 3.—Stripping Apparatus in Connection with Soaking Pits.

are to be reheated in furnaces, or to the floor if they are to be placed in soaking-pits. The hook at the end of chain Y' is afterward attached to the bar and the ingot molds are straightened back into place by working the drum. This system might be modified so as to push ingots straight from the molds into the heating furnace, thus combining the charging and stripping apparatus into one, and realizing further economy.

Fig. 3 shows the apparatus in connection with soaking-pits. A crane picks up the ingot on the floor and places it in the pit, while another crane on the other side takes out the regenerated ingot and puts it on driven rollers to the blooming train. The apparatus could easily be handled by two men—one at the valves and the other at the hooks. If used at the heating furnace, no extra men need be put on the work, the usual rolling staff being sufficient.

The arrangements shown on Figs. 6 and 7 were devised with a view to make the work of stripping almost entirely automatic, and represent the result of an exchange of ideas between Mr. E. L. Ford and myself.

Fig. 6 will be easily understood. The ingots are cast butt end up in a mold provided with trunnions. The bearings are on a car.

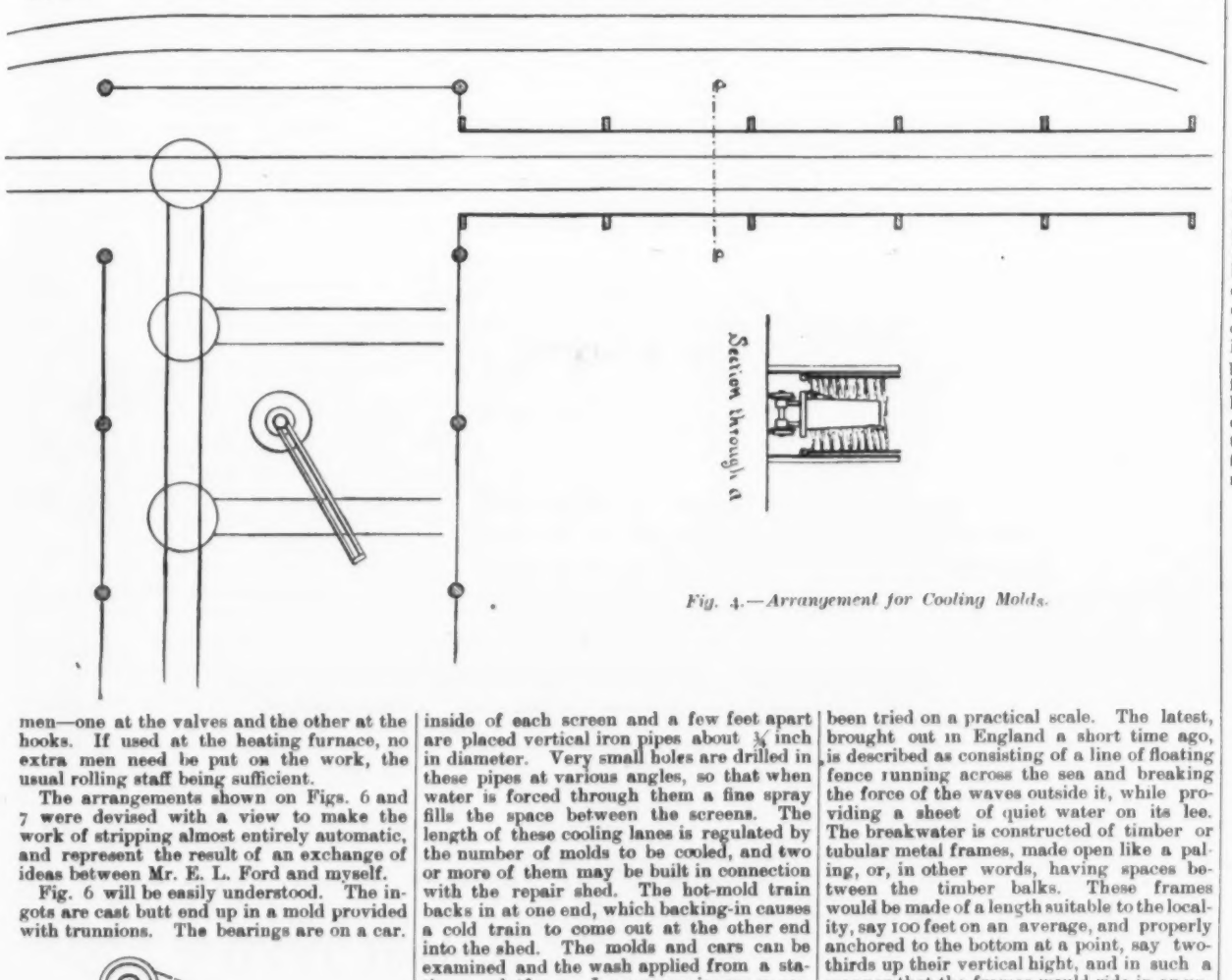


Fig. 4.—Arrangement for Cooling Molds.

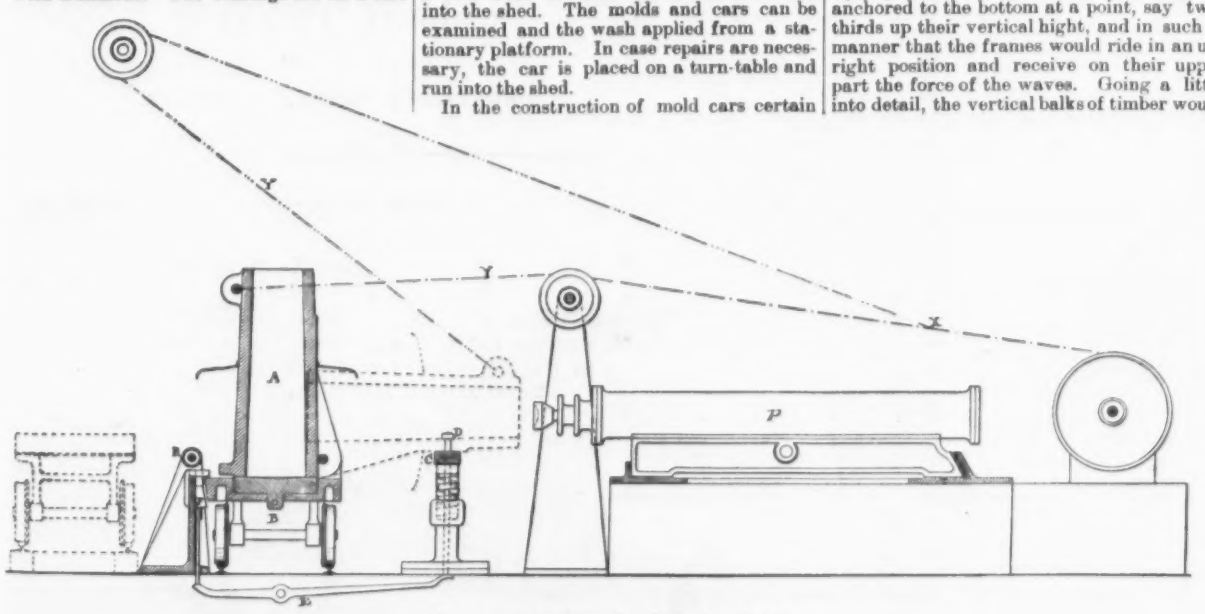


Fig. 5.—Apparatus for Stripping Ingots.

The molds are hung so that they are slightly top-heavy when filled. The only necessary labor is the removal of the latch L; the molds will then turn over and drop their ingots on the floor or on a table. The bottom plug may be separated from the body of the mold by a heavy corrugated spring, so that in case of a sticker a blow from a heavy sledge would be more effective in dislodging the ingot. A slight impulse will bring the molds back into their original position.

Fig. 7 shows a mold on trunnions, as in Fig. 6, but in this case the butt end is down, and the stool is hinged to the bottom of the mold. It is provided with a projection or lip, K, bearing upon a roller placed on the side of the car. A hook, H, works on the hinge-pin and closes upon a fixed bar running between the trunnion bearings. Upon removal of this hook the stool slides forward on the roller, and, the bottom of the mold being free, the ingot falls out. The forward motion of the mold is assisted by placing the trunnions out of center. When the mold is empty the stool is pushed back into place and the hook secured. It will be seen that the two last-mentioned arrangements are practically automatic, using no crane, no pushing cylinder or machinery of any kind.

In order to complete the system it would be necessary to establish a repair shed at some convenient point between the rolling mill and the converting-house, where the molds could be cooled and the cars examined. The arrangement shown in Fig. 4 is suggested. On each side of the track a screen, somewhat higher than the top of the mold, is erected of any suitable material. On the inside of each screen and a few feet apart are placed vertical iron pipes about ¼ inch in diameter. Very small holes are drilled in these pipes at various angles, so that when water is forced through them a fine spray fills the space between the screens. The length of these cooling lanes is regulated by the number of molds to be cooled, and two or more of them may be built in connection with the repair shed. The hot-mold train backs in at one end, which backing-in causes a cold train to come out at the other end into the shed. The molds and cars can be examined and the wash applied from a stationary platform. In case repairs are necessary, the car is placed on a turn-table and run into the shed.

In the construction of mold cars certain contingencies will have to be provided against, and all movable parts, such as trunnions and hinges, must be protected from spilling. Judging from the record of works in which this practice has been prevalent, it is evident that there need be no apprehension of serious trouble. The practice obtains to a small extent in this country, and has given satisfactory results. Many ways will occur to practical engineers by which exposed parts of molds and cars can be shielded.

Before closing I would say that a complete discussion of all the details connected with the subject would have carried us beyond the scope of a paper like the present one, which is meant only as a suggestion of methods likely to bring about a needed reform. The aim will be reached if it leads others to look for improvements in the same direction. The casting-pit as it exists in most steel works, both open-hearth and Bessemer, is certainly a costly nuisance, and as such should be speedily abated.

Floating Breakwaters.

Several of our English contemporaries have of late devoted their attention to the subject of floating breakwaters, pointing out that the construction of a regular system of harbors of refuge at frequent intervals along the coasts is a matter of great importance and national convenience. It has been very properly stated that a few permanent harbors, constructed at great cost, are only a partial solution of the question how to shelter coasting vessels and fishing smacks, since to render a real service to these craft shelter harbors should be provided at special places much frequented by them, or at regular distances along the coast, so that they can make for them in bad weather and be able to reach them within a reasonable time. Such works need not be permanent structures in the sense of being built of solid masonry at a great expense. They may be floating breakwaters, costing comparatively little, readily placed in position and easily repaired. It is this class of works which is specially required at the present time to meet the wants of the seafaring population and to satisfy those who are philanthropically interested in this important matter. The French Government has already taken the matter in hand and has commenced the construction of a nnmber of such harbors.

Several kinds of floating breakwaters have been invented and brought before the public from time to time, and some have actually been tried on a practical scale. The latest, brought out in England a short time ago, is described as consisting of a line of floating fence running across the sea and breaking the force of the waves outside it, while providing a sheet of quiet water on its lee. The breakwater is constructed of timber or tubular metal frames, made open like a paling, or, in other words, having spaces between the timber balks. These frames would be made of a length suitable to the locality, say 100 feet on an average, and properly anchored to the bottom at a point, say two-thirds up their vertical hight, and in such a manner that the frames would ride in an upright position and receive on their upper part the force of the waves. Going a little into detail, the vertical balks of timber would be of white or yellow pine, bolted to longitudinal beams. These balks, for a breakwater 24 feet deep, would be about 12 inches square, with 12-inch openings between; and for one 30 feet deep they would be 20 inches square, with 20-inch openings between. Of course these frames could be made of any timber of the country suitable for the purpose and having the necessary strength and buoyancy, an advantage which will be appreciated. They may also be made of hollow metal if it is found desirable in point of cost and convenience. They are to be anchored by means of slack chains, which permit them to rise and fall with the tide In this particular, however, there is also a variety of methods practicable according to the nature of the locality. In one form of frame the lower part is entirely closed, so as to oppose a back resistance to the force of the waves breaking against the upper and open part. Air chambers are also provided in some instances to increase the buoyancy of the frames. These frames are to be arranged in a single or in parallel lines, and may be echeloned with respect to each other, or angled in a zigzag, so as to permit the waves to be partially deflected off their sides These, however, are matters of detail which may or may not be necessary in certain cases. Considering the simplicity and inexpensive character of such breakwaters and the promise of successful practical working which they hold out, it is to be hoped that they will be more generally made subjects of experiment. Favorable results seem almost certain, and their influence will be most beneficial.

Professor Tyndall on Electricity.

In an instructive lecture on "The Sources of Electricity," delivered before the British Royal Institution several months ago, Professor Tyndall, among other things, dealt with the properties of hollow conductors, using in the first instance a silver teapot. He charged with electricity a brass ball held by a silken thread, lowered the ball into the open teapot, then showed that the teapot contained no electricity inside, but plenty outside, especially at the end of the spout. If a little boy could be put inside that teapot, he explained, no electricity would be found there. Faraday once made a little house of laths; it was 12 feet square, and covered with tinfoil. While he was inside that house not a trace of electricity could he find there with the most delicate instruments, while the house was in communication with a most powerful battery, and giving strong sparks outside.

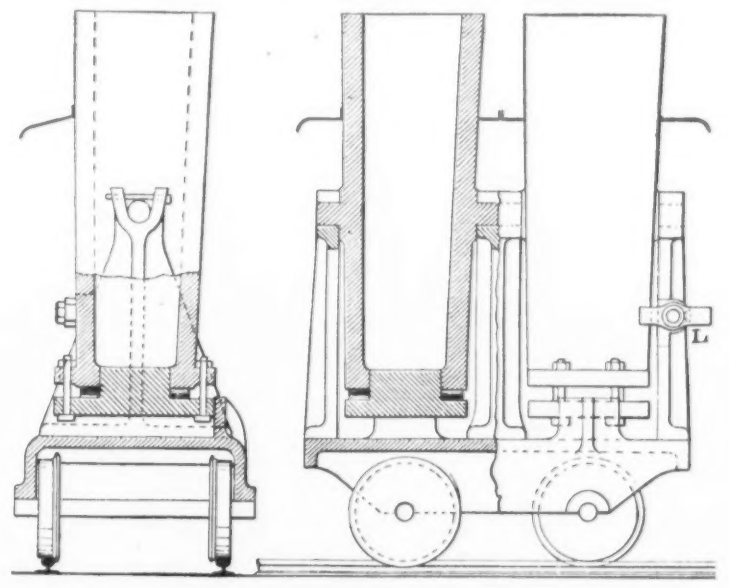


Fig. 6.—Mold Car.

Professor Tyndall next spoke of the influence of points, saying that one experimentalist had determined the sharpness of thorns by their action upon electricity. He electrified a great insulated paper tassel, thereby causing its long strips of paper to diverge, and the distant as well as the near approach of a needle point made the strips fall together again; this, he said, explains the principle of the lightning conductor. He exhibited a lightning conductor with several points tipped with platinum; from his little experience he was inclined to think that one point to a lightning conductor was as good as many; still it might be right to have several. The conductors should have a good earth connection at the bottom, and not be put but 2 inches into it, as a builder did on one occasion. The Board of Trade has a lighthouse on the north coast of Ireland in which the bottom of the lightning conductor was once led into the solid rock at the base; he wrote to the authorities, after an accident to the structure from lighting, saying that they invited the lightning to strike the lighthouse, and that the bottom of the copper rod should have been connected with the sea. The best discharger of electricity is a flame; it is more efficient than metal points. A wind flows from electrified metal points, the air being made self-repulsive. He then put some water with the chill off in a flat glass cell and dusted a little lycopodium on the surface of the liquid; the wind from an electrified point made the particles self-repulsive, and their eddies were exhibited in magnified form upon the screen by the aid of the electric lantern. The electric mill, in which vanes are driven round by the wind from an electrified point, was next exhibited.

The electrophorus, he said, was discovered by Volta, to whom a statue has been erected in the market place at Como, because of the great honor in which that early electrician is held, not alone in Italy, but all over the world. He then brushed the rosin and wax plate of the electrophorus with the catskin, brought the conducting disk down upon the plate, and showed how a spark was obtained from the latter. A sheet of vulcanized india-rubber, he proved, will do as the plate of an electrophorus: a disk of tin, with a sealing-wax handle, will do for its conductor; so also will a half-crown attached to a stick of sealing wax. By the latter means he obtained enough electricity to enable the half-crown to attract the end of a freely balanced lath. He next exhibited the electrical machine of Mr. Whimshurst, who, he said, was connected with the Board of Trade; he was a man who had not tried to make money out of the machine, but had given it freely to the world. Next he explained the principle of the Leyden jar, saying that in 1745 Von Kleist, a bishop of Cammin, in Pomerania, charged with electricity a flask containing mercury; a nail running through the cork touched the mercury; this apparatus, when charged as just stated, gave at shock. In 1746 Cunæus, of Leyden, received shocks from a flask in which water was substituted for mercury.

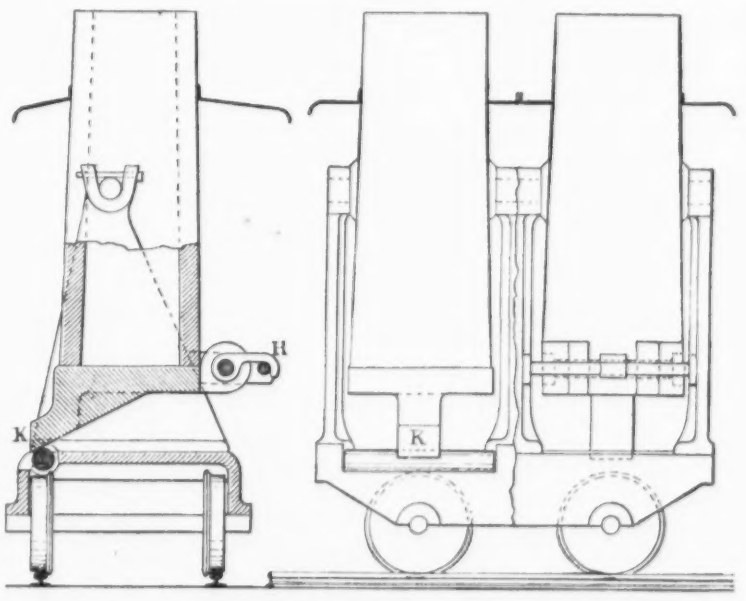


Fig. 7.—Mold Car

Removing Obstructions from Pneumatic Tubes.—No method has yet been discovered, it would appear, for removing obstructions from pneumatic tubes preferable to that resorted to in Paris—its location being determined by simply firing a pistol into the tube. The resulting wave of compressed air, traversing the tube at the rate of 1000 feet a second, strikes the impediment and is then deflected back to its origin, where it strikes against a delicate diaphragm, its arrival being recorded electrically upon a very sensitive chronograph, on which also the instant of firing the pistol has been recorded previously. The wave of sound on reaching the diaphragm is recorded, and thence reflected back—a second time striking the obstacle and returning to the diaphragm. This operation being several times repeated, several successive measurements are thus made of the time required by the sound-wave to travese to and fro within the pneumatic tube. Other means have been applied to the accomplishment of the object in question, but this has proved to possess special advantages.

An accident happened at No. 3 Slope of Pardee Bros. & Co., at Lattimer, Pa., recently, which resulted in the destruction of the hoisting machinery and the consequent stoppage of work. A substitute for the regular engineer was hoisting a loaded car, when he lost control of the engine, and the car got away from him and started down the slope at a terrible rate. The fly-wheel was broken into a thousand pieces, the cylinder-head of the engine blown out, and a general wreck of the hoising machinery was caused.

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In papers, 1 cent per doz. more. Polished and Bronzed, in papers, 3 cents per doz. more.

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No. 325, 4¼-inch Horizontal Rim Knob Locks, same finish as No. 311	1.09
No. 326, 4¼-inch Horizontal Rim Knob Locks, Brass Key	1.46
No. 327, 4¼-inch Horizontal Rim Knob Locks, Brass Bolts and Key	1.67
No. 216, Horizontal Knob Latch, 2½ x 3¼, Iron Bolts and Hub	.60
No 218, Horizontal Knob Latch, 2½ x 3¼, Iron Bolts and Hub, Iron Slide Bolts, Flush Thumb-piece	.80
No. 450, Mortise Lock, 3½-inch, Polished Front, Flat Tinned Key	1.17
No. 67, Thumb Latches, Wrought-Iron Latch, Japanned, weight 6 pounds per doz	.23
No. 6, Pittsburgh Latch, weight 6 pounds per doz	.22
No 217, 2½ and 3¼, Horizontal Rim Knob Latch, Polished Brass Bolt, Iron Hub, per doz	1.22
No. 219, 2½ and 3¼, Horizontal Rim Knob Latches, Polished Iron Bolts, Iron Slide Bolts, Brass Flush Thumb-pieces, per doz.	.92
No. 220, 2½ and 3¼, Horizontal Rim Knob Latches, Polished Brass Bolts, Brass Slide Bolts, Brass Flush Thumb-pieces, Iron Hubs, per doz	1.34
No. 225, 2½ and 3¼, Horizontal Rim Knob Latches, with Patent Reversible Polished Iron Bolts, Iron Hubs, without Knobs, per doz	.83
No. 227, 2½ and 3¼, Horizontal Rim Knob Latches, with Patent Reversible Polished Brass Bolts, Iron Hub, without Knobs, complete, per doz	1.08
No. 229, 2½ and 3¼, Horizontal Rim Knob Latches, with Patent Reversible Polished Iron Bolts and Iron Slide Bolts, Flush Thumb-pieces, without Knobs, per doz.	.93
No 230, 2½ and 3¼, do. do., with Brass Flush Thumb-pieces, per doz	.98
No 231, 2½ and 3¼, Horizontal Rim Knob Latches, with Patent Reversible Polished Brass Bolts, Brass Slide Bolts and Brass Flush Thumb-pieces, without Knobs, per doz	1.44
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No. 315, do. do., with Stop, per doz	1.17
No. 316, do. do., Brass Key, "	1.54
No. 317, do. do., Brass Bolts and Key, per doz	1.77
No. 330, 4¼ in. Horizontal Rim Knob Locks, Tinned Iron Key, with Stop, 1 Tumbler, 12 Changes. Patent Reversible Polished Iron Bolts, without Knobs, per doz	1.14
No. 331, do. do., with Brass Key	1.54
No. 332, do. do, with Brass Bolts and Key	1.77

Latches Nos. 225, 227, 229, 230 and 231, and Locks Nos. 314, 315, 316, 317, 330, 331 and 332, are made with our new Patent Reversible Bolt, patented January, 1885. To reverse Bolt, partly pull out and turn half around ; it will spring back to position. We purpose to make these the cheapest and best ever offered to the trade. Will add a full line of Mortise Locks with our new Patent Reversible Bolt very soon. Our Locks are warranted as good as any make, and we will sell them at a moderate margin of profit. We prefer a steady business, which we always have, by offering first-class goods low. We make goods to sell, not to hold.

Brackets.

	Per doz. pairs.
No. 34, 4 x 5, Ornamental Store Shelf Brackets, Japanned	$0.59
No. 35, 5 x 6, Ornamental Store Shelf Brackets, Japanned	.77
No. 37, 6 x 8, Ornamental Store Shelf Brackets, Japanned	.96
No. 39, 8 x 10, Ornamental Store Shelf Brackets, Japanned	1.25
No. 40, 8 x 12, Ornamental Store Shelf Brackets, Japanned	1.44
No. 45, 4 x 5, Ornamental Store Shelf Brackets, Packed with Screws, Bronzed	.79
No. 50, 5 x 6, Ornamental Store Shelf Brackets, Packed with Screws, Bronzed	1.05
No. 55, 6 x 8, Ornamental Store Shelf Brackets, Packed with Screws, Bronzed	1.30
No. 60, 8 x 10, Ornamental Store Shelf Brackets, Packed with Screws, Bronzed	1.92
No. 65, 8 x 12, Ornamental Store Shelf Brackets, Packed with Screws, Bronzed	2.38
No 70, 4 x 5, Ornamental Library Brackets, Packed with Screws, Bronzed	.95
No. 75, 5 x 6, Ornamental Library Brackets, Packed with Screws, Bronzed	1.30
No. 80, 6 x 8, Ornamental Library Brackets, Packed with Screws, Bronzed	1.42
No. 82, 7 x 9, Ornamental Library Brackets, Etruscan Bronze, with Screws	1.79
No. 85, 8 x 10, Ornamental Library Brackets, Packed with Screws, Bronzed	2.22
No. 90, 8 x 12, Ornamental Library Brackets, Packed with Screws Bronzed	2.85
No. 95, 10 x 12, Ornamental Library Brackets, Packed with Screws, Bronzed	3.02
No. 100, 4 x 5, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	1.12
No. 105, 5 x 6, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	1.38
No. 110, 6 x 8, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	1.60
No. 112, 7 x 9, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	1.98
No. 115, 8 x 10, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	2.40
No. 120, 8 x 12, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	2.99
No. 125, 10 x 12, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	3.23

Broughton's Patent Burglar-Proof Sash Locks.

	Best and Cheapest Ever Made. Per doz.
No. 1, Iron, Etruscan Bronze, Plain Lever, fine finish	$0.20
No. 2, Iron, Etruscan Bronze, Porcelain Knob, fine finish	.25
No. 6, Iron, Etruscan Bronze, Plain Lever, fine finish	.25
No. 7, Iron, Etruscan Bronze, Porcelain Knob, fine finish	.29
No. 10, Iron, Etruscan Bronze, Plain Lever, fine finish	.21
No. 15, Iron, Etruscan Bronze, Porcelain Knob, fine finish	.25
No. 20, Iron, Etruscan Bronze, Ornamental, Plain Lever, fine finish	.24
No. 25, Iron, Etruscan Bronze, Ornamental, Porcelain Knob, fine finish	.28
No. 30, Iron, Olympian Bronze, Ornamental, Polished, Plain Front, fine finish	.33
No. 35, Iron, Olympian Bronze, Ornamental, Porcelain Knob, fine finish	.37
No. 40, Iron, Olympian Bronze, Ornamental, Real Bronze Knob, fine finish	.73
No. 41, Iron, Olympian Bronze, Ornamental, Plain Lever, Extra Heavy, fine finish	.42
No. 42, Iron, Olympian Bronze, Ornamental, Porcelain Knob, fine finish	.48
No. 43, Iron, Olympian Bronze, Ornamental, Real Bronze Knob, fine finish	.72
No. 45, Iron, Ornamental, Nickel-Plated, Plain Lever, fine finish	1.15
No. 50, Iron, Ornamental, Nickel-Plated, Porcelain Knob, fine finish	1.20
No. 51, Iron, Ornamental, Nickel-Plated, Brass Knob, fine finish	1.84
No. 52, Iron, Ornamental, Nickel-Plated, Inlaid Old-Gold finish, with Nickel-Plated Screws, Plain Lever	1.47
No. 53, do., do., Porcelain Knob	1.52
No. 54, do., do., Real Bronze Knob. Handsomest design and finish ever offered.	2.12
No. 55, Cast Brass, Polished, Plain Lever	1.08
No. 65, " " " Porcelain Knob	1.12
No. 70, " " " Brass Knob	1.37
No. 78, Ornamental, Bronze Metal Knob, with Screws, extra heavy	1.26
No. 80, Ornamental, Polished, Bronze Metal Knob, extra heavy, very fine	1.70
No. 85, Ornamental, Extra Polished, two Bronze Metal Knobs, very heavy, with Screws	1.85
No. 90, Ornamental, Polished, Extra Heavy, Porcelain Knob, with Screws	1.18
No. 95, Ornamental, Polished, very heavy, Bronze Metal Knob and Bronze Metal Screws	1.90
No. 100, Ornamental, Polished, two Bronze Metal Knobs, extra heavy, with Bronze Metal Screws	2.26
No. 53, Ornamental, Nickel-Plated, very heavy, Porcelain Knob, with Screws	1.90
No. 72, Ornamental, Polished, Cast Brass, Porcelain Knob, extra heavy, with Screws.	1.82
No. 73, Ornamental, Cast, Polished Brass, extra heavy, Brass Knob	2.07
No. 155, Ornamental, Real Bronze Metal, Flat Lever, Extra Polish and Lacquered, with Real Bronze Screws	1.59
No. 165, Ornamental, Real Bronze, Bronze Metal Knob, extra heavy, Real Bronze Screws	1.74
No. 175, Ornamental, Real Bronze, two Bronze Metal Knobs, with Real Bronze Screws, very fine	1.99
No. 185, Ornamental, Real Bronze, very heavy, Bronze Metal Knob, with Bronze Screws	2.74
No. 190, Ornamental Real Bronze, very heavy, two Real Bronze Metal Knobs, with Screws	2.99
No. 200, Ornamental, Iron, Iron Knob, very heavy, Eruscan Bronze finish	.69
No. 201, Ornamental, Iron, Polished Iron Knob, very fine and extra heavy	.74
No. 205, Ornamental, Real Bronze, with Bronze Screws, very heavy, our last design	3.35
No. 210, New Design, Nickel-Plated, very heavy, with Nickel-Plated Knob and Nickel Screws	2.44

All Sash Locks from Nos. 20 to 210 packed with Screws.

	Per gross.
No. 155, Sash Lifts, Ornamental, Bronzed, with Screws	$0.99
No. 160, Sash Lifts, Ornamental, Polished and Bronzed, with Screws	1.20
No. 162, Ornamental Sash Lifts, Polished, Pompeii Bronze finish, with Screws	1.24
No. 250, Ornamental Sash Lifts, Genuine Bronze Metal, with Bronze Screws, per doz.	.72

	Per doz.
3 in., Extra Tower and Barrel Bolts	$0.25
4 in. " " " "	.28
5 in. " " " "	.35
6 in. " " " "	.46
7 in. " " " "	.55
No. 20, 6 in. Chain Door Fasteners, Ornamental, with Screws, Bronzed	.95
No. 326, 6in. Chain Door Fasteners, Polished and Bronzed, fine finish	1.07
No. 425, 7 in. Chain Door Fasteners, Real Bronze Metal, with Screws	9.00

	Per doz. pairs.
No. 51, Chest Handles, Surface, extra heavy	$0.47
No. 53, " " " "	.70
No. 55, " " " "	1.00

Drawer Pulls.

	Per gross.
No. 20, 3½-inch Ornamental Copper Bronze, Packed with Screws	$0.85
No. 22, 3½-inch Ornamental Etruscan Bronze, Packed with Screws	1.33
No. 24, 3½ inch Ornamental Olympian Brze., Packed with Screws	1.45
No. 25, 3½-inch Ornamental Pompeii Bronze, Packed with Screws	1.46
No. 35, 4-inch Ornamental Copper Bronze, Packed with Screws	1.03
No. 37, 4-inch Ornamental Etruscan Bronze, Packed with Screws	1.39
No. 39, 4-inch Ornamental Olympian Bronze, Packed with Screws	1.59
No. 40, 4-inch Ornamental Pompeii Bronze, Packed with Screws	1.59
No. 50, 4½-inch Ornamental Copper Bronze, Packed with Screws	1.22
No. 52, 4½-inch Ornamental Etruscan Bronze, Packed with Screws	1.79
No. 54, 4½-inch Ornamental Olympian Brze., Packed with Screws	1.69
No. 55, 4½-inch Ornamental Pompeii Bronze, Packed with Screws	1.70
No. 27, 3½-inch Ornamental Etruscan Bronze, Packed with Screws	1.40
No. 29, 3½-inch Ornamental Olympian Brze., Packed with Screws	1.53
No. 3 ½, 3½-inch Ornamental Pompeii Bronze, Packed with Screws	1.54
No. 42, 4-inch Ornamental Etruscan Bronze, Packed with Screws	1.51
No. 44, 4-inch Ornamental Olympian Bronze, Packed with Screws	1.68
No. 45, 4-inch Ornamental Pompeii Bronze, Packed with Screws	1.59
No. 57, 4½-inch Ornamental Etruscan Bronze, Packed with Screws	1.69
No. 59, 4½-inch Ornamental Olympian Brze., Packed with Screws	1.89
No. 60, 4½-inch Ornamental Pompeii Bronze, Packed with Screws	1.90

	Per doz.
No. 224, 3½-inch Ornamental Genuine Bronze, Packed with Screws	$0.87
No. 239, 4-inch Ornamental Genuine Bronze, Packed with Screws	1.02
No. 254, 4½-inch Ornamental Genuine Bronze, Packed with Screws	1.26
No. 229, 3½-inch Ornamental Genuine Bronze, Packed with Screws	.98
No. 244, 4-inch Ornamental Genuine Bronze, Packed with Screws	1.21
No. 259, 4½-inch Ornamental Genuine Bronze, Packed with Screws	1.42
No. 234, 3½-inch Ornamental Genuine Bronze, Packed with Screws	.92
No. 249, 4-inch Ornamental Genuine Bronze, Packed with Screws	1.18

Coat and Hat Hooks.

	Per gross.
No. 75, Japanned, 14 pounds	$0.58
No. 77, Coppered, "	.55
No. 210, Japanned, Bull-Frog Pattern	.72
No. 215, Coppered, " "	.73
No. 110, Schoolhouse Hook, Japanned, extra heavy	1.34
No. 115, Schoolhouse Hook, Coppered, extra heavy	1.39

	Per doz.
No. 130, Harness Hooks, 4½ inch, Japanned	$0.25
No. 132, " " 5¾ inch, "	.31
No. 134, " " 5½ inch, "	.38
No. 136, " " 6 inch, "	.42

	Per gross.
No. 260, Ornamental Coat and Hat Hooks, Bronzed	$1.71
No. 265, Ornamental Coat and Hat Hooks, Polished and Bronzed	1.95
No. 266, Ornamental Coat and Hat Hooks, Pompeii Bronze	1.95
No. 290, Ornamental Coat and Hat Hooks, Etruscan Bronze	2.20
No. 295, Ornamental Coat and Hat Hooks, Olympian Bronze	2.27
No. 296, Ornamental Coat and Hat Hooks, Pompeii Bronze	2.28

	Per doz.
No. 140, Ornamental 8-inch Bird Cage Hooks, Etruscan Bronze	$0.27
No. 145, Ornamental 10-inch Bird Cage Hooks, Etruscan Bronze	.33
No. 150, Ornamental 8-inch Bird Cage Hooks, Olympian Bronze	.31
No. 160, Ornamental 8-inch Bird Cage Hooks, Etruscan Bronze	.28
No. 170, Ornamental 10-inch Bird Cage Hooks, Olympian Bronze	.35
No. 180, Ornamental 8-inch Bird Cage Hooks, Olympian Bronze	.30
No. 190, Ornamental 10-inch Bird Cage Hooks, Olympian Bronze	.39

Casters.

	Per set.
1⅝, No. 1, Iron Wheel	4½¢
1⅝, No. 2, "	4½¢
1⅝, No. 3, "	5½¢
2 in., No. 1, "	6 ¢
2 in., No. 2, "	6½¢
2 in., No. 3, "	7 ¢
2 in., No. 4, "	8 ¢

Same with Porcelain Wheel, from 1¾¢ to 2¼¢ per set more.

Extra, with Lignum Vitæ Wheel, from 2½¢ to 3¢ per set extra.

1⅝, Globe, Porcelain Wheel	9 ¢
2 in., " "	13 ¢
1¾ in., " Lignum Vitæ Wheel	11 ¢
2 in., " "	16 ¢
No. 1, Philadelphia Casters, Iron Wheel	4½¢
No. 2, "	4½¢
No. 3, "	5 ¢
No. 4, "	5½¢
No. 5, "	5½¢
No. 1, Philadelphia Casters, Porcelain Wheel	5½¢
No. 1, " Lignum Vitæ "	6 ¢
No. 2, " " "	6½¢
No. 2, " Porcelain "	5½¢
No. 3, " " "	6½¢
No. 3, " Lignum Vitæ "	7 ¢
No. 4, " " "	8 ¢
No. 4, " Porcelain "	7 ¢
No. 5, " " "	7½¢
No. 5, " Lignum Vitæ "	8½¢

	Per doz.
No. 140, Ornamental Store-Door Handles, extra heavy, Etruscan Bronze	$1.68
No. 141, Ornamental Store-Door Handles, extra heavy, Olympian Bronze	1.67
No. 142, Ornamental Store-Door Handles, extra heavy, Pompeii Bronze	1.67
No. 241, Ornamental Store-Door Handles, Real Bronze, very heavy	9.00
No. 375, Ornamental Match Safes, Iron, Pompeii finish, very elegant	1.50
No. 395, Ornamental Match Safes, Iron, Pompeii finish, very elegant	1.75
No. 376, Ornamental Iron, Nickel-Plated, Inlaid, Old-Gold Finish, very handsome, will sell at sight	2.45
No 396, do. do	2.95

Blind Hinges.

No. 1, for Wood, for Southern trade, 6 doz. sets in a case, per case	$4.25
No. 1½, for Wood, extra heavy, for Cold Climates, weight per case, 6 doz. sets, 13 lb.	5.00
No. 7, for Brick Mortise, Self-Locking, Wrought Iron Locking Device, with inside Fastenings. Patented September 8, 1884. Weight per set, 3 pounds, per set.	.16
No. 150, Cupboard Catch, Patent, with Screws, Etruscan Bronze, per gross.	1.24
No. 1, Blind and Shutter Bowers, Bows Blinds at Two Angles, and Locks when Shut, per doz.	.56
No. 100, Blind and Shutter Bowers, Bows Blinds at Two Angles, and Locks when Shut, with Screws, per doz.	.82
No. 290, Ornamental Shutter Knobs, per gro.	1.85
No. 295, Ornamental Shutter Knobs, Pompeii Bronze, per gross.	1.97
No. 335, Ornamental Shutter Knobs, Genuine Bronze Metal, per doz.	.98

No. 50.—Two-Third Size.

ORNAMENTAL

Store Shelf Brackets.

Bronzed. Packed with Screws.

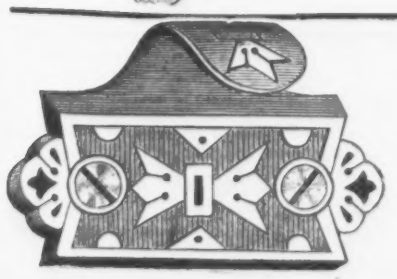
PER DOZEN PAIRS, $1.05.

Ornamental Drawer Pulls.

Full Size Cut of Nos. 42 to 244 and Style of Nos. 27 to 259.

	Per gross.
No. 42, 4-inch Ornamental Etruscan Bronze, Packed with Screws	
No. 44, 4 " " Olympian " " "	
No. 45, 4 " " Pompeii " " "	
No. 57, 4½ " " Etruscan " " "	
No. 59, 4½ " " Olympian " " "	
No. 60, 4½ " " Pompeii " " "	

	Per doz.
No. 224, 3½-inch " " Genuine " " "	
No. 239, 4 " " " " "	
No. 254, 4½ " " " " "	
No. 229, 3½ " " " " "	
No. 244, 4 " " " " "	



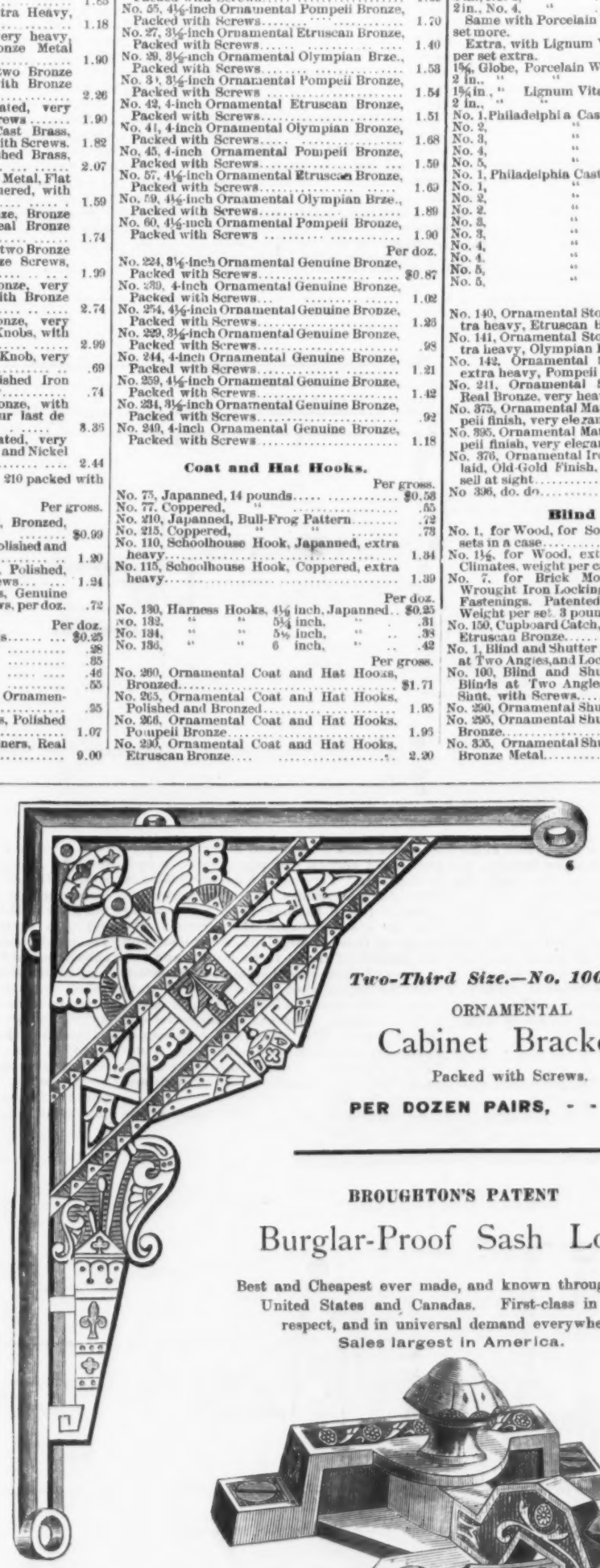
Full Size Cut of Nos. 155, 160 and 260.

No. 155.—Sash Lifts.

Ornamental. Bronzed, with Screws. Per Gross, 99 cents.

No. 160.—Sash Lifts.

Ornamental. Polished and Bronzed, with Screws. Per Gross, $1 20.



Two-Third Size.—No. 100, 4 x 5.

ORNAMENTAL

Cabinet Brackets.

Packed with Screws.

PER DOZEN PAIRS, - - $1.12.

BROUGHTON'S PATENT

Burglar-Proof Sash Lock.

Best and Cheapest ever made, and known throughout the United States and Canadas. First-class in every respect, and in universal demand everywhere. Sales largest in America.

Full Size.—No. 205.

Ornamental. Real Bronze, with Bronze Screws. Very Heavy. Our last Design.

PER DOZEN, - - - $3.36.

METALLURGICAL NOTES.

The Avesta Process at Prävall.

U. Hupfeld, a leading Austrian metallurgist, of the Prävali Works, in Corinthia, has made a series of experiments to test the question whether the fixed Swedish converter as used at Avesta could be successfully applied to the conditions prevailing at Alpine works. First, some preliminary experiments were made in a small converter, the dimensions of which were the same as those of the Avesta vessel. In spite of crude arrangements, notably so far as it affected the time required for filling the converter, the blow was hot enough, the casting was satisfactory, and the product was softer than other Bessemer steel. This small converter had been built into a large one, and when the latter was needed for regular work a special vessel was put up. Contrary to all expectations, the continuous working, during which pig iron was tapped every 50 minutes from the blast furnace, turned out to be very unsatisfactory. Although the pig iron contained 2.5 per cent. of silicon and 5 5 per cent. of manganese, the blow, lasting 35 minutes, was too cold. This was attributed to the quality of the pig iron, poor charcoal being used The pig iron, too, was not deep in the crucible of the furnace, which had a diameter of 6.5 feet. Good results, however, were obtained by alternately blowing a small and a large charge, only 1400 to 1500 pounds being used for one out of two blows. Later, when better charcoal became available, very fine gray pig was produced, and continuous working of the converter was successfully achieved. The furnace was tapped every hour, and 14 to 18 successive blows were made until the lack of space for handling the ingots caused an interruption. Herr Hupfeld concludes from his experiments that small blast furnaces may be tapped without any difficulty at intervals of one hour, and that it is possible to convert their entire output into steel in a small vessel, provided very hot pig iron is available. The latter point he regards as the fundamental condition of success, because the slightest cooling of the pig leads to violent ejections during the blow. He believes that it would be a good thing to be able to tap from the furnace directly into the converter, but holds that in most cases this could not be arranged. He expresses the opinion that long runners should be avoided. It is not according to Herr Hupfeld to make in a charcoal furnace uniformly hot gray iron, and it is impossible to tap lots of 1600 to 2000 pounds at a time from furnaces making more than 30 tons of iron per 24 hours. He holds that it would be best to accumulate the iron in a gas reverberatory furnace, which would at the same time afford an opportunity to heat the iron With a few exceptions, when the iron was too cold the blows progressed favorably. After one or two minutes, and in some cases at once, a long flame appeared, which remained, accompanied by a heavy smoke, till the end of the blow. After adding ferromanganese, and before casting, the bath was cooled by adding as much as 10 per cent. of scrap. Herr Hupfeld states that the quality of the steel made in the Avesta stationary converter is better than that of the ordinary process. It is tougher than wrought iron, welds in a satisfactory manner and possesses high ductility. Sixty successive charges averaged .0281 per cent. silicon, 11 blows or 18 per cent. under .02, 29 or 48.6 per cent. from .02 to .03 of silicon, 11 or 18 per cent. from .03 to .04 silicon, 7 charges or 11.6 per cent. from .04 to .05 per cent. of silicon, and 2 blows or 3.8 per cent. from .05 to .055 per cent. of silicon. The general average of the carbon was .1166 per cent. The same grade of iron in the large vessels at the same time yielded an average of .055 per cent. of silicon and .126 per cent. of carbon.

The Cellular Structure of Steel.

Experiments continued for several years past in the laboratories of the Creusôt Works by MM. Osmond and Werth have led to some new observations on the internal structure of cast steel which have been communicated recently to the French Academy of Sciences. If thin plates of cast steel (.02 to .03 mm. thick) are fixed on glass by means of Canada balsam and attacked cold by dilute nitric acid, the acid dissolves the iron and leaves as a residue the derived nitrate of a hydrate of carbon. The skeleton thus obtained reveals *in situ* the distribution of the carbon in the steel. Microscopic examination shows that this distribution is not uniform and that cast steel is formed by little granules of soft iron in general separated from each other by small pieces of a different substance which contains carbon, and is, in fact, a carbide of iron. In other words, cast steel possesses a kind of "cellular tissue," iron constituting the cores and the carbide the envelopes of the cells. These elementary or simple cells are agglomerated into compound cells, the agglomerations being separated in the thin transparent plate, being empty lines, which indicate closed polygons in run steel, but which becomes smaller and more confused in proportion as the metal has been perfectly worked. These void lines in the corroded plates imply that the faces of the polygons are composed of soft iron, without interposition of carbide; and MM. Osmond and Werth infer that the compound cells are deprived of envelope. These compound cells are easily identified with what is termed the "grain" of the steel; their faces are regions of least cohesion, and thus the fracture of a bar of steel follows the surface which contains least carbon. Trials were also made by the method of Weyl, which consists in attacking a bar of cast steel by the dilute chlorhydric acid at the positive pole of a Bunsen cell: the carbonaceous residue preserves the form, appearance and dimensions of the primitive bar. The residue is formed of continuous meshes, in which were lodged the free iron. These meshes consist of carbide of iron. Surfaces of polished steel were also treated with nitric acid and the crystallitic organization of the globulites of iron well shown. With regard to tempering, MM. Osmond and Werth remark that (in the case of cast steel cooled slowly) after quick tempering the compound cells completely disappear, and the simple cell remains the constituent element, but the carbide of iron interposed has become much rarer than in the same annealed steel. The surplus carbide seems to have dissolved in the metallic mass. From the anatomical point of view, hammer hardening has nothing in common with tempering, although its effects are similar. It is shown by a permanent deformation of the cells, with elongation of the cores in the direction of local movement, a correlative dislocation more or less complete of the slightly malleable envelope.

Plant and Processes.

A non-conducting covering for steam-pipes, boilers and other heated surfaces has been patented by J. M. Hammill, of Philadelphia, Pa. The covering consists of a series of tubular shells made of paper, strawboard or other material and slipped over one another. To each of these shells there is attached, by any suitable cement, a facing of granulated cork. If desired the coating may be made in one piece and wound around the pipe in a spiral. The cork forms tortuous passages for the free circulation of air around the pipe. The claim of the patent is for a covering which consists of superposed layers of paper having granulated cork adhesively applied to its surface.

A pile-box for containing scrap iron and steel during the process of welding has been patented by the Tremont Nail Company, of West Wareham, Mass. The box is composed of several lengths of muck bars, the bottom and top being respectively formed of two straight lengths placed side by side, while the sides of the box are made of two lengths bent into U-shape. Each of these U-shaped lengths forms one complete side and one-half of each of the adjacent sides. In putting the box together the bottom pieces are laid upon a piling bench, and the side pieces are placed upon them, with their ends in close contact with each other. The box is then ready to be filled and to be closed by its cover.

A tuyere iron which permits the introduction into the furnace of an auxiliary stream of gas in connection with the ordinary air stream has been patented by J. Hadley, of Alexandria, Va. The tuyere consists of three tapering shells placed one within the other. The inner shell forms an open passage which is connected at one end with the main blast-pipe. The annular spaces between the shells communicate at the receiving end of the tuyere with two water-circulating pipes and a gas-pipe. At the discharge end these annular spaces are partially closed by a perforated head. The claim of the patent covers the combination of three shells placed one within the other, with two end plates which unite the shells.

A water-ring plate for iron and steel furnaces has been patented by J. Henderson, of Bellefonte, Pa. This ring plate is made in four sections, held together by bolts, and is provided with two annular chambers for the circulation of water. Water enters the plate through an inlet, passes to the further end of one cooling chamber, is then discharged into the other cooling chambers, and finally passes back to a discharge-pipe. The joint between the sections is closed by a tongue and groove, so that gases cannot pass between the sections to the outside of the furnace. The ring plate supports the walls of the reverberatory chamber separately from the hearth.

A new process of purifying pig iron and manufacturing it into wrought iron has been patented by J. J. Johnston, of Columbiana, Ohio. The molten pig iron is first mixed in a heated receiving chamber with a highly-heated compound consisting of iron ore, lime and salt. The proportions of the compound are 80 parts of iron ore to 10 parts of lime and 10 parts of salt. The purified metal is subsequently reheated in a reheating furnace and then balled. The balls are subjected to the ordinary squeezing or hammering and rolling process to form blooms or muck bars. By this process of manufacturing malleable iron the ordinary puddling process is dispensed with, and much time and labor is claimed to be saved. The inventor, moreover, asserts that he produces a superior quality of malleable iron, equal to the best brands known in the market.

The Winsted Norway Bolt Company, of West Winsted, Conn., have patented a bolt-heading machine which upsets the end of the wire or rod and forms the head and square part of the bolt all in one heat. The machine is provided with longitudinal rails upon which slide two carriages which hold the dies. An upsetting die on one carriage strikes the projecting end of the wire, and upsets the same to form a slightly tapered head. Next the heading die on the second carriage strikes this upset end, and gives the desired shape to the head. The squared part of the bolt directly below the head is made by a solid die, and thus the radial seams on the under side of the head made by pinched dies are entirely avoided. To hold the wire while it is being upset, it is grasped by two jaws which are clamped together. After the bolt is finished it is pushed out of the machine and drops into a suitable receptacle.

The Cambria Iron Company, of Johnstown, Pa., have procured a patent for an apparatus for annealing wire. The masonry of the oven is provided with a deep hole which may be closed by means of a cover. This cover has an opening which connects with a pipe that leads to the exit flue. The annealing pot is placed within the hole, and is of such size that a hot-air space is formed around and above it. The pot rests upon a bottom plate, beneath which hot-air flues are formed. These flues extend from the right and left of the fire arch to the space around the annealing pot. The wire is first placed into the pot, and the latter, as well as the opening in the oven, is then covered up. The heat and smoke pass around the pot, and are thence discharged through the upper pipe into the exit flue.

To close a temporary opening in a wire fence between the posts, a new coupling has recently been introduced. This coupling consists of a metal rod doubled up at one end to form an eye and a hook a short distance beyond the eye. The other end of the rod is also bent to form a hook. In order to connect two ends of wire, one wire is passed through the eye of the coupling and twisted around itself to be properly held in place. The back hook is then passed through an eye formed upon the end of the second wire, and finally the rod is turned back flush with the wire and hooked under the same. This coupling has been patented by N. H. Fuller and H. S. Hallock, of Menlo, Iowa.

The Iron Age

AND

Metallurgical Review.

New York, Thursday, March 19, 1885.

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A Comparison of Pig-Iron Districts.

It is almost unnecessary to say that the production of pig iron is an industry which is very widely established in the United States. It has obtained a foothold in the most remote sections of the country, being prosecuted even in localities which have been but recently reclaimed from savage control. In the distant Rocky Mountains, in the more remote Sierra Navada range and on the shores of far-off Puget Sound blast furnaces have been built and sucessfully operated by enterprising iron manufacturers. It is a characteristic of this country, which has manifested itself from earhest times, to begin the manufacture of crude iron as soon as a section containing iron ore and fuel is opened up to settlement, and the iron enterprises on the Pacific Coast are but modern examples of this propensity. In the older sections of the country the iron industry has been pretty thoroughly established. In the Maine woods, through the mountainous region of the Atlantic States, in isolated sections of the South, in Northern Michigan, Wisconsin and Minnesota, and in the suburbs of many of our large cities, have similar enterprises been located wherever men supposed there was an opportunity to make iron profitably. The production of pig iron is a very scattered industry in the United States, so many establishments consisting of but a single furnace, which may be located hundreds or thousands of miles from similar works.

There are, however, a number of districts in which blast furnaces have been clustered quite thickly, and which have acquired distinction from this circumstance. The Salisbury district of Connecticut has long been known through its famous iron, almost exclusively made with charcoal fuel. The Hudson River has a considerable number of furnaces located on its banks from its mouth to Albany. The Chattanooga district, comprising East Tennessee, Northern Georgia and Northern Alabama, is becoming widely known by reason of its rapidly-increasing production of pig iron. The vicinity of Lake Superior, Lake Michigan and Lake Huron is distinguished for the large quantity of excellent pig iron smelted there from Lake Superior iron ore. But the leading districts of the country, with regard to the quantity of pig iron turned out annually, are found within the territorial limits of Pennsylvania and Ohio. Here are situated the famous Lehigh and Schuylkill valleys, the Valley of the Susquehanna, Pittsburgh, the Shenango Valley, the Conemaugh Valley, the Mahoning Valley, the Hanging Rock region and the Hocking Valley. These have all been distinguished in their time, but from some of them their glory has departed, either by the decadence of the pig-iron industry within their limits or by the rise of new iron-making districts of greater promise.

In 1872 the Lehigh Valley was the most prominent pig-iron producing district in the United States. That was a year of high prices, of feverish demand, and of output stimulated to the highest capacity of existing establishments. In that year the Lehigh Valley made with exclusively anthracite fuel almost one-sixth of all the pig iron produced in the United States. In 1874, a year of languishing trade, it turned out less than one-eighth. In 1878, recovering from the depression more rapidly than other districts, it appears in the records of the trade credited with more than one-sixth of the country's output. But from that time its relative importance declined, owing to the greater progress made elsewhere with the production of coke pig iron, until in 1884 it made less than one-eleventh. The following table will show the relative importance of the Lehigh Valley to the country at large in the years since 1872:

Years.	Lehigh Valley. Net tons.	United States. Net tons.
1872	449,663	2,854,558
1873	389,969	2,868,278
1874	316,789	2,689,413
1875	280,360	2,266,581
1876	261,274	2,093,236
1877	235,059	2,314,585
1878	416,907	2,577,861
1879	456,350	3,070,875
1880	544,987	4,295 414
1881	560,190	4,641,564
1882	609,338	5,178,122
1883	575,987	5,146,972
1884	431,867	4,589,613

As the glory of the Lehigh Valley has been eclipsed by the superior brightness of Pittsburgh, which took first place as a pig-iron district in 1883, it will be interesting in this connection to note the gradual rise of the Smoky City from an obscure position among producing sections to its present altitude. Notwithstanding its present occupancy of first place, however, Pittsburgh has not yet made as much pig iron in any one year as the Lehigh Valley did in 1882. The following table shows the production of pig iron at Pittsburgh and vicinity since 1872:

Years.	Net tons.	Years.	Net tons.
1872	110,599	1879	267,315
1873	158,789	1880	300,497
1874	143,660	1881	385,453
1875	131,856	1882	358,840
1876	128,555	1883	592,475
1877	141,749	1884	487,055
1878	217,299		

A district which has advanced very rapidly of late years is that of the Lower Susquehanna Valley. This increase is probably entirely due to the erection of an extensive blast-furnace plant by the Pennsylvania Steel Company. This district makes the following showing in the years mentioned:

Years.	Net tons.	Years.	Net tons.
1872	159,805	1879	165,500
1873	157,403	1880	217,889
1874	137,556	1881	218,329
1875	79,717	1882	300,240
1876	103,369	1883	337,419
1877	111,252	1884	419,439
1878	137,719		

Another section of Pennsylvania looming up prominently in recent years is the Western part of the State outside of Pittsburgh and the Shenango Valley. This section embraces the valleys of the Allegheny, the Conemaugh and the Youghiogheny. The furnaces of the Cambria Iron Company contribute largely to the output of the region, which has been as follows since 1872:

Years.	Net tons.	Years.	Net tons.
1872	117,224	1879	214,123
1873	111,014	1880	286,007
1874	97,068	1881	341,104
1875	102,520	1882	322,717
1876	130,635	1883	301,564
1877	178,271	1884	350,870
1878	189,285		

The Schuylkill Valley a few years ago received a decided impetus from the efforts of the Philadelphia and Reading Railroad Company to systematically develop the iron trade of that locality, but untoward events afterward interfered with the execution of the company's plans, and the valley has not made the progress in pig-iron production which was expected. Yet is a very important district. Its production has been as follows since 1872:

Years.	Net tons.	1878	144,558
1872	232,225	1879	191,748
1873	236,409	1880	306,926
1874	232,420	1881	309,049
1875	123,184	1882	342,701
1876	144,909	1883	337,433
1877	155,434	1884	278,578

The interests of the Shenango Valley in Pennsylvania and the Mahoning Valley in Ohio are very closely interwoven. They are located very close to each other, and their production preserves a wonderful correspondence. We give the production of the two valleys since 1872 in the following table:

Years.	Shenango Valley. Net tons.	Mahoning Valley. Net tons.
1872	160,188	152,756
1873	160,831	136,972
1874	156,419	121,403
1875	137,025	115,963
1876	158,495	137,546
1877	145,179	136,526
1878	122,958	134,400
1879	150,861	147,844
1880	215,313	226,877
1881	198,968	245,737
1882	264,078	258,478
1883	290,069	244,265
1884	246,086	246,288

The Upper Susquehanna Valley, in Pennsylvania, while it comprises several good-sized blast furnace plants, is not so important as the other districts of the State. Its product since 1872 has been as follows:

Years.	Net tons.	Years.	Net tons.
1872	127,260	1879	125,971
1873	129,304	1880	168,128
1874	88,248	1881	125,785
1875	71,731	1882	201,367
1876	79,217	1883	165,629
1877	56,776	1884	148,352
1878	84,547		

The pig-iron industry of the Hanging Rock region of Ohio has witnessed many vicissitudes in recent years. At one time this district was a very important factor in the supply of pig iron for the necessities of the United States, but now it plays quite an insignificant part. Adding charcoal and bituminous pig iron together, we have the following table illustrative of the condition of the Hanging Rock iron trade since 1872:

Years.	Net tons.	Years.	Net tons.
1872	110,609	1879	86,542
1873	120,966	1880	125,170
1874	111,888	1881	138,987
1875	94,312	1882	132,910
1876	87,082	1883	130,589
1877	84,756	1884	80,661
1878	64,650		

Quite an important part in the production of pig iron in Ohio is taken by the bituminous furnaces in various parts of the State outside of the Mahoning, Hanging Rock and Hocking districts. Grouped together, their production has been as follows in the years mentioned, the furnaces at Cleveland being chiefly responsible for the figures of recent years:

Years.	Net tons.	Years.	Net tons.
1872	128,196	1879	161,457
1873	139,958	1880	232,105
1874	184,748	1881	232,994
1875	199,780	1883	225,634
1876	165,057	1883	263,956
1877	153,316	1884	207,038
1878	156,251		

We can very appropriately wind up this glance at the leading pig-iron districts of the country with an allusion to the Hocking Valley of Ohio, which a few years ago was heralded as the most promising region for the manufacture of pig iron that had been discovered in the United States. Here is its record since pig iron was first made in its limits:

Years	Net tons.	Years.	Net tons.
1875	1,250	1880	85,719
1876	7,483	1881	88,146
1877	23,895	1882	78,770
1878	65,690	1883	48,439
1879	51,908	1884	24,126

It will be seen from this statement that thus far the Hocking Valley has played but a minor part in supplying the demand for pig iron.

Strikes and Improved Processes.

The labor situation at the close of the year 1884 and the beginning of 1885 has been marked by a number of important and severely-contested strikes. Among these may be mentioned the Hocking Valley miners' strike, lasting nine or ten months, and involving immense losses both to operators and miners; the Kensington weavers' strike, that has now been in progress for more than four months; the flint-glass workers' strike, at Bellaire, Ohio; the great railroaders' strike of the Wabash system, and now the miners' strike in the Pittsburgh district. These are not given as exhausting the list, but simply as indicating the wide range of localities and industries in which important strikes are either in progress or have just been settled. The outcome of most of the strikes in the period to which we have referred has been against the workmen, and, while they have suffered immense losses in wages, the employers have also suffered severely. There must be some reason underneath all this. These contests must be indicative of some economic conditions of more than usual importance that compel, on the one hand, employers to suffer losses in business and profits that they are not usually willing to endure, except in cases of most ugent necessity, and, on the other hand, workmen to submit to much suffering and privation.

The apparent cause is, of course, the necessity that exists for reduction in the cost of production and the attempt to compel labor to do its share toward securing such reduced cost. It does not, however, satisfactorily account for the labor trouble alluded to, because this necessity has existed at other times without such a prevalence of industrial conflicts. Why, then, should these conflicts be so extensive and so severe at the present time? The fact is there has been a notable and constant tendency in the past 50 years toward reduced cost. Of course, in this time there have been fluctuations; prices have gone up and then down; but it is noticeable, especially in the industries in which we are more particularly interested, that every decline has been to a lower point, as every advance has not reached the highest price realized at the previous advance. In bringing about this reduced cost of production the attack has been made on labor, because labor is the chief element of cost, whether that cost in a given works be raw material or the labor in converting that raw material. Labor has met it and resisted, though unsuccessfully in many instances. Yet, as a rule, employers are chary of prosecuting a conflict that may bring disaster to themselves as well as to their workmen. The necessity, therefore, of seeking relief in other directions has been made apparent, and it is to improved methods and improved processes manufacturers have turned.

This is no new phase of the contest between employer and employed; it has been going on since the invention of the first labor-saving machinery, and especially since the change from the domestic to the factory system. It is especially noticeable at the present time in our iron and coal industries. The tendency in these industries is, by the use of new machinery and new processes, toward a maximum of production with the minimum of human labor, and these contests that are growing will hasten the adoption of new processes and machinery. The substitution of the fusion process for the puddling process, with labor-saving appliances at the rolls; of self-tempering and self-hardening steel for dies in the nail machine and self-feeders in place of hand-feeders; drop forging for hand forging, and the coal-cutting machine for the miner, are all in the line of substituting automatic work and automatic machines and processes for human skill. Labor cannot prevent such substitutions. They are inevitable. They grow out of the necessity of things, and, properly considered, they are a benefit and not an injury to labor, viewing labor as a whole. While labor may not prevent, it may delay them by recognizing the conditions that exist, and endeavoring to meet them in a spirit of fairness and conciliation.

The Iron Trade and the Daily Press.

The iron trade has had the misfortune during the past few months of attracting the attention of the daily newspaper press in a manner which is calculated to do it some injury. The condition of the iron and steel industry is such that influences which under ordinary conditions would not affect it can now do positive harm or be largely beneficial. The knowledge of the fact that in almost every department the immediately-available supply is comparatively very limited is keeping both buyers and sellers keenly alert to discover any indications which might warrant a change in policy. Therefore every medium of information is closely scanned, and, however cautious business men may be in accepting the statements in the daily press, they are nevertheless swayed by them. Buyers are influenced in their purchases, by constant reports of low sales, to persist in a waiting policy; makers are buoyed up, by tales of a different character, to continue to operate works which, if they were not deceived as to the state of the markets, they would decide to close.

It is only too well remembered that under somewhat similar conditions values have in the past history of the trade shown a disposition to move upward rapidly. It is the constant expectation that the rebound from the present depressed state of the industry may be very sudden which makes the markets so sensitive. They are undoubtedly influenced to some extent by newspaper statements and comments, and are particularly affected by one class of writers. For certain political reasons it has become customary with the class to which we refer to draw very gloomy pictures as to the condition of the trade. Every opportunity is seized to announce with much flourish, and occasionally with an assumption of regret, that some particular branch is in a very bad state. Exceptionally low figures are named, with or without foundation in fact, to show that business is in a deplorable condition. No one who has the best interests of the iron and steel trades at heart can close his eyes to the fact that there are weak spots, and that in some departments prices still show a declining tendency. It is, however, one thing to frankly acknowledge this, and quite another to persistently harp on it with the intention of creating impressions for some ulterior object foreign to the subject under discussion. The iron trade has not yet become accustomed to being used as a club to inflict injury upon political opponents, nor, like the coal trade, to be used to hammer railroad stocks in Wall street. Yet the drift of comment in some of the daily newspapers unmistakably points in that direction. We do not believe that the effect of such a course upon the iron trade is given more than a passing notice. The fancied or distorted view of its condition is merely a means to an end. We must vigorously protest against such an abuse of power at a time when, as we have said, the industry is in a peculiarly sensitive condition. The numerous ramifications of the iron trade, the dependence of one branch upon another, and the independence of some from the rest, make the work of truthfully portraying the passing phases of its prosperity or depression a matter for trained observers only. Writers who have not got these qualifications are apt to convey to their readers very erroneous impressions, which are not without their influence upon buyers, who, as a class, are less able to detect errors or misrepresentations.

A second, though a less harmful, class of newspaper reports are those which herald a marked improvement in the iron trade, basing their roseate views on the reports of the blowing-in of furnaces, the starting of mills, &c. In so far as these views are exaggerated they have a bad effect. They give rise to hopes and expectations which cause a corresponding reaction as soon as their inaccuracy is discovered; they unsettle the labor market; they help to destroy that feeling of confidence which can only come from the confirmation of an exact and truthful record of the situation. The iron trade has the right to demand that sensational reports of an unfavorable character, written merely for political effect, be stopped. It does not desire, either, unwarranted tales of improvement when the markets have not rallied. If the daily newspaper press believe it incumbent on them to inform the public of the fluctuations of one of the leading industries of the country, let that industry stand on its own merits. Both "bulling" and "bearing" do harm.

Silver versus Gold.

In the discussion of the silver-coinage question the laws of trade and the voice of reason are too frequently ignored. It matters not that there is no market for the silver dollar; it is insisted that the coinage must go on, and if, as a consequence, our almost faultless currency system is subverted, we are asked to regard the coming of the catastrophe with indifference—nay, with satisfaction. The advocates of compulsory silver coinage are numerous and powerful, as seen by the recent Congressional vote, and cannot be suppressed by the mere waving of a wand. On the 12th ultimo our readers were favored with the views of Henry Carey Baird, of Philadelphia, on the side of the silver producers and miners of the Pacific Coast, and in another column to-day we hear from M. C. Meigs, superintendent and architect of the new Pension Building, both of whom enter into the controversy apparently with no misgivings respecting the soundness of their position. The opponents of the silver dollar pronounce the arguments employed by its advocates wholly untenable and easily refuted, and in this, we think, they take good ground.

Let us inquire into the facts. The "trade dollar," as appears from its face, was originally designed for the export trade, more especially for India and China, where the Mexican dollar of about the same weight—5 oz. less to $1000—stood high in favor. The experiment, it is needless to remark, proved a signal failure, of which we have convincing evidence in the large quantities recently bought up by New York brokers at 84 cents on the nominal dollar, for shipment ostensibly to the far East. Then followed the silver coin known as the "Bland dollar," which was remonetized for the same purpose, viz., to open a market for silver. The mine owners of the Pacific Coast naturally looked about for a purchaser, and succeeded in inducing Congress to agree to purchase $2,000,000 of bullion every month with which to turn out $2,300,000 in coin. The world sees the result in the immense Government vaults crowded to repletion with silver coin, which for practical purposes might as well be pig iron.

The old silver dollar was worth $1.08 in gold, because at that time silver was scarce, the production being limited. Jewelers and manufacturers bought the coin for the fine silver it contained, its value being 59d. sterling per ounce, against 49d. to-day. That earlier price made the parity in New York $1.29 of fine silver per ounce, whereas at the present rate of about 49d. the parity is reduced to $1.09, making a difference of 10d., or about 20 cents per ounce. The idea of contending that a silver dollar is worth now as much as it was when silver was 59d. per ounce seems to the ordinary mind absurd. To make a silver dollar equal to a gold dollar in value, it is evident that as it depreciates in price the weight must be increased. It must be made equivalent to the gold dollar in value, for the reason that it is a legal tender for the payment of debts to any amount. Therein it differs from the subsidiary coinage—halves, quarters and tens—which is limited to $10 as a tender for indebtedness. The subsidiary coin being limited in legal-tender quality, the weight is of minor consideration, and might as well be 300 grains to the dollar as 385 grains. Their use being exclusively for domestic purposes, they are tokens merely and of no value for export. The argument employed in regard to the copper cent may be applied also to the subsidiary silver coinage; it does not matter what the intrinsic value is in either case so long as the legal-tender quality is limited.

If the gentlemen who are so deeply interested in silver, for reasons best known to themselves, desire to learn the actual value of the silver dollar, it is only necessary that they go to any jeweler or assayer and see what he will allow for it in gold. The result will establish its value beyond all cavil. It is undoubtedly true, as stated by our correspondent, that bankers and foreign merchants have reasons for discrediting the American silver dollar, but we can discover no possible motive for wishing to "destroy" or "wipe it out." If an American merchant owed a merchant in London $100,000, and he offered in payment 100,000 silver dollars, he would receive credit for less than $85,000, because the London exporter would take it simply as bullion for the pot, and would get out of it only 82 or 83 cents net. The tender of an equal amount in silver in settlement of indebtedness—for instance, the payment of mortgages incurred with gold for a standard—would not be any better than downright robbery in case the gold basis should first drop out under the pressure of a baser metal.

The strained relations between England and Russia have supplied the only notable impulse to some of the speculative markets of leading commodities during the past week. The first serious news of a threatened conflict in the East between the two great powers had the

effect of giving backbone to the bulls in wheat in Chicago, and mildly reflected upon stocks in Wall street. The temporary "arrangement" so promptly arrived at by the would-be belligerents had a reassuring effect, though it is not quite certain yet whether it was not entered into by one of the parties as a means to hoodwink the other. It may be questioned whether there has not been much exaggeration as to the possible beneficial effect upon the prices we might realize for some articles of export in which Russia is an active competitor in the same markets. Among these, of course, wheat and petroleum are the most prominent. Concerning the former, it has been pointed out with much justice that, even if England were to shut out Russia from the seas, there remains open to it transportation by rail over the Austrian and German boundaries. With a low rate of freight, which a word from the Government would secure, so far as it related to carriage on Russian roads, the surplus of wheat could be directed to Continental markets in spite of protective duties. Of course this would mean higher cost, and to some extent would cripple a leading competitor, but still the others, prominently India and Australia, would be more vigorous sellers. While it cannot be questioned that a war between Russia and England might improve the price of our wheat, it would not warrant any extreme advances. It would, however, undoubtedly give some stimulus to business here.

The coal miners' strike in the Pittsburgh district is now in its second week, and is more general than it has been during any strike for some years. On the other hand, the operators appear more determined than they have ever been before. Some of them who do a local business have conceded the demands of the miners and are running to supply that trade. It should be noted, however, that certain pits, among them some of the largest in the district, are running at the reduced price, the miners refusing to join in the strike. What the result will be depends entirely on future developments of the trade. Should business revive and the employers be able to secure a better price for their coal they will concede the rate asked by the miners, who in that contingency would have received the price they claim had they adhered to the award of the umpire. In other words, demand and prices must go up to a 3-cent rate before 3 cents will be conceded, and it is difficult to see how this can be done in the face of the low rates at which coal is being mined in contiguous districts, which supply at lower prices to the same markets that the Pittsburgh coal reaches. The great difficulty in Western Pennsylvania seems to be that there are more miners and coal banks than are required to meet the demand. So long as there are eager sellers at lower figures than those which Pittsburgh operators can afford to sell at when they are paying the rate for mining demanded, they will resist the miners' terms. The strike, therefore, from the present aspect of the markets, is ill-advised.

The failure of Messrs. Pope, Cole & Co., of Baltimore, one of the oldest and certainly the largest copper-refining works in the country, appears to be due largely to three causes: the decline in the price of the metal; the advancing of heavy sums to the Old Dominion Copper Company of Arizona, and the withdrawal of very heavy sums—it is said over $500,000—during the past three or four years as profits by the special partners, of whom Mr. Garrett, of the Baltimore and Ohio Railroad, was one. The refining of copper has been a very lucrative business, the price charged for refining the ordinary black or blister copper of the West being $20 to $25 per net ton, while the actual cost, with the cheap and excellent fuel at Baltimore, or rather Canton, where the works are located, is stated to range from $7.50 to $9, assuming that the works were as carefully and economically managed as they were given credit for. At Detroit, where the bulk of the Lake copper is refined, the charge is about $11 per ton, in spite of the fact that the "mineral" as it comes from the stamps rarely carries more than 80 per cent. of the metal, and on an average nearer 72 or 73 per cent., while the Arizona bars range from 93 to 97 per cent. fine. The charges on Western mattes, whether argentiferous or not, are even heavier. The failure of Messrs. Pope, Cole & Co. must not, therefore, be attributed to ruinous prices for refining copper.

Freights on Coke, Ore and Limestone in the Mahoning Valley.

To the Editor of The Iron Age: My attention has been called to an editorial in your journal of March 12, 1885, headed "Birmingham, Alabama, as an Iron Producing Center." There is one paragraph in your article which does injustice to the different lines of railroads centering in the Mahoning Valley. It would appear from your standpoint that no reductions in railroad rates have been made here. This is a very grave mistake. Within the past 60 days some very heavy reductions have been made, both on local rates upon the raw materials and in through rates upon products. For instance, the rate on coke, which has heretofore been $2 per ton, has been reduced to $1.60, and, as it takes nearly 1½ tons of coke to produce a ton of pig iron, there is a saving to the furnace owners of at least 50 cents per ton in this item alone. The rate on iron ore from different lake ports to the Mahoning Valley has been reduced to 75 cents per gross ton, which includes all dockage and handling charges at the point of shipment. Rates on limestone have also been materially reduced; in short, the railroad people have done a very handsome thing in the way of assisting the owners of furnace plants in this valley, not only in the reduction of rates, but in adjusting other and discriminating rates to and from near-by competing points. While I am not prepared to say that still further reductions cannot be made and still leave the railroad companies a fair compensation for handling the business, I think that they should be given credit for what they have done "Give the devil his due."

Regarding the cost of producing Southern pig iron, there seems to be a wide divergence of opinion, the estimates varying from $8 to $13.50 per ton. It should be remembered, however, that the cost of Southern iron, as a rule, is made up without profit to the producers of the raw materials entering into the composition of the iron, while the reverse is true in the North. For instance, a "conservate estimate" of the cost of producing pig iron in the Mahoning Valley includes a profit to the Lake Superior ore miner, a profit to the Connellsville coke producer, a profit to the limestone quarry, a profit to the coal miner, and a profit to the transportation companies hauling the different materials. So far as the Mahoning Valley is concerned, with the recent reductions in railroad freights, the greatly reduced prices of Lake Superior ore and reduced labor, coupled with the admitted better quality of pig iron produced, we expect to meet our Southern competitors on common ground. Northern and Southern irons mingle well together and typify the bond of union between the North and South, cemented and welded together for all time to come. Very truly yours, J. G. BUTLER, JR.

YOUNGSTOWN, OHIO, March 14, 1885.

The Silver Dollar.

WASHINGTON, D. C., March 10.

To the Editor of The Iron Age.—DEAR SIR: You say in your last that the silver dollar is worth less than 85 per cent. of the gold dollar, the unit of value. Please read the coinage acts. The first is "Act of April 2, 1792." It orders gold eagles, half-eagles, &c., to be of value of 10, 5, &c., units or dollars. It then establishes the silver dollar or unit of the coinage, to be of the same weight and fineness as the Spanish milled dollar then current. This was the unit. It contained 371¼ grains of pure silver. It continued unchanged till 1837, when by law a new standard of fineness was enacted for both gold and silver, which since that time have been $^{9}/_{10}$ fine. But the quantity of silver in the unit, the dollar, remained and remains now 371¼ grains of pure metal. So the unit is unchanged. The cent is token money only, and as metal 100 cents are worth about 15 cents. The cent was and is still by law the $^{1}/_{100}$ part of the unit or of the silver dollar, and that silver dollar must be worth 100 cents, a hundredth part of itself.

Bankers and foreign merchants endeavor to discredit, to demonetize, to destroy, to wipe out the silver dollar, the original and thus far permanent basis and unit of money in the United States, by printing daily that it is a fraud, worth only 85 per cent. of its face. Has it depreciated? Is it a fraud? You remember when it took 2½ silver dollars to pay for a bushels of wheat. Ninety-two one-hundredths of a silver dollar will now buy a bushel of wheat. If the silver dollar has depreciated 15 per cent. as compared with that commodity gold, comparatively useless as a metal, valuable only as a representative of value or coin, it has appreciated much more—about 150 per cent—as compared with wheat, the great staple of food of civilized man, a permanent and useful commodity. A bushel of wheat at all times will feed a human being for a certain time, preserve and maintain life, health and comfort. Is the bushel of wheat a fraud because it commands now less than a silver dollar, while a few years since it commanded 2½ dollars? Such denunciation of the unit of money most used by the poor is unfair, dishonest, a fraud upon the people, and should not be countenanced by honest counsellors of the people like your paper.

Leave it to brokers and dealers in credits who take care of the $900,000,000 of imports, and care not for the $10,000,000,000 of annual expenditures by the poor for the necessaries of life, all of which they have purchased, paid for in the legal unit, the silver dollar of 371¼ grains, pure silver, ever since in 1792 the Fathers—"Daddies," if you please, in the offensive slang of the money dealers and usurers—first established the unit of our republican decimal system of money.

Very respectfully, your obedient servant,
M. C. MEIGS.

WASHINGTON NEWS.

WASHINGTON, D. C., March 17, 1885.

(*From Our Regular Correspondent.*)

IMPORTANT NOMINATIONS.

The President sent the following nominations to the Senate to-day: Milton J. Durham, of Kentucky, to be First Comptroller of the Treasury. William Garrard, of Nevada, to be Superintendent of the Mint of the United States at Carson City, Nev. Joseph R. Ryan, of Nevada, to be Coiner of the Mint at Carson City, Nev. Malcom Hay, of Pennsylvania, to be First Assistant Postmaster-General. Martin V. Montgomery, of Michigan, to be Commissioner of Patents.

THE ENGROSSING CLERKS' ERRORS.

An investigation will be made of the errors willfully or negligently committed by the engrossing clerks in the Naval bill. The fact that two important items should be omitted in the same bill has a suspicious look about it. One of these items was the $500,000 appropriated for the armament of the new cruisers. It will be remembered that there was a bitter contest over this item, and the fact of its omission is regarded as circumstantial evidence that the omission was not accidental. Mr. Randall says that the omission will not delay the completion of the steel cruisers. The last appropriation will be available until June 30, and he thinks in December Congress will promptly remedy the omission, thus losing but five months in arming the vessels. Messrs. Randall and Holman evidently think that there was a design in this omission, and that it could not be excused on the ground of want of time between the agreement of the conference and final adjournment, as the bill was engrossed, to their knowledge, before the final meeting of the conference committee.

PROTECTION ABROAD.

The diplomatic and consular reports received at the Department of State show a decided impulse in the direction of a protective policy among the States of Europe. Not long since a report was received of a movement of this kind in the German Parliament and the Swedish Diet; now a report comes from Belgium to the same effect. The competition of American agricultural products is what has aroused the apprehensions of the peoples of these countries. Official reports indicate a similar feeling in England. Protection against American agricultural products and free trade for English manufactures is strongly hinted at in official reports.

RELATIONS BETWEEN LABOR AND CAPITAL.

Senator Blair, of New Hampshire, has obtained authority from the Committee on Education and Labor to continue the investigation of the relations between labor and capital, authorized by the Senate resolutions of August 7, 1882, and February 26, 1883. Senator Blair says that the investigation is substantially concluded, and he only asks an extension of the time, without any extension of the original work contemplated, the object being the completion and submission of the final report of the committee. Mr. Wright, the Commissioner of the Bureau of Labor, has formulated a programme which he has submitted to Secretary Lamar, and which has been approved. The general features of the commissioner's scheme is to trace out if possible, by investigation, the causes of the labor difficulties and methods of work. To do this a start will be made by the appointment of special agents to gather statistics in the United States and Europe. The Labor Commissioner of New York, Charles F. Peck, will be one of these agents to go to Europe. These investigations will be hastened in order to incorporate the result in a report to Congress in December. The commissioner is anxious to get the machinery of his office into operation as quickly as possible.

INTERSTATE COMMERCE.

Senator Cullom has asked the appointment of a select committee of five Senators to investigate and report upon the subject of the regulation of commerce among the several States, with authority to sit during the recess of Congress and with power to summon witnesses and to do whatever is necessary for a full examination of the subject.

THE NEW ASSISTANT SECRETARY,

Mr. Charles S. Fairchild, the successor to Judge French in the office of Assistant Secretary of the Treasury, has assumed the duties of his office. In a conversation with the correspondent of *The Iron Age*, he said: "As far as I am concerned, in matters affecting duties on articles I shall endeavor to interpret the laws justly. I think the question of protection should have nothing to do with the rendering of a decision. I may say that I am not a protectionist in theory; but the question of protection is not an issue just now. The laws must be administered, and as far as my duties lie in that direction I shall endeavor to decide in accordance with the spirit and the letter of the law."

LATEST CUSTOMS DECISIONS.

The following is a synopsis of sundry decisions rendered by the Secretary of the Treasury during the past week: Steel gun-barrel ribs, imported in connection with shotgun barrels, the value of which is included in the price of the barrels, are not separately dutiable, but are to be assessed with duty as part of the guns to which they belong. Small bronze articles, such as liquor-stands, inkstands, vases, belts and other ornaments, which, although plated and gilt to a certain extent, are not commercially known as plated or gilt ware, but as "Vienna bronzes," are dutiable at 45 per cent. ad valorem under Paragraph 216, and not as plated or gilt ware at 35 per cent. ad valorem. So-called "antimonial lead," containing about 97½ per cent. of lead, with a small quantity of arsenic and antimony, is dutiable as lead in pigs, under Paragraph 189, at 2 cents per pound, and not, as claimed, at 20 per cent. ad valorem under the provision for type metal.

NO DRAWBACKS ON CERTAIN SCRAPS OF TIN.

The Secretary of the Treasury, in a letter to the collector of customs at Baltimore, says, in reply to an inquiry as to allowance of drawback on disks and scraps of tin from manufacture of cans on which drawback has been allowed: "Referring to the department's letter to you of the 15th of December last, relative to drawback on tin disks resulting from the manufacture of cans of less than 5-gallon capacity, I have to state that the department has decided to adhere to the principle enunciated in its decision of November 25, 1884 (Synopis 6662), with regard to scrap or wastage resulting from the manufacture of articles exported for drawback, under Section 3019, Revised Statutes, whether such wastage is or is not allowed for in the drawback on the original manufactures. You will therefore discontinue the allowance of drawback temporarily authorized by said letter for the above-described tin disks from and after the 15th instant."

CYLINDER CAST-IRON FERRULES AND SOCKETS.

In an appeal from an assessment of duty at the rate of 45 per cent. ad valorem on certain "iron ferrules and sockets," the Secretary of the Treasury says: "It appears that the articles in question consist of malleable-iron pick sockets and ferrules, made for Hardy's patent picks, which were considered by the appraiser to have undergone a further process of manufacture after being cast, and hence were classified as above. The appellants claim that they are simply castings, and dutiable as such at 2 cents per pound, under T. I., new, 161. The only treatment which the articles appear to have received is that of having been cleaned or brightened, in the manner common to such castings, by friction with others in a revolving cylinder. According to the department's decision of October 8, 1883, this is not sufficient to take the articles out of the category of castings, and they are properly dutiable as such under the paragraph cited."

NO LIMITATION OF TIME TO ALLOWANCE OF DRAWBACK.

The Secretary of the Treasury, in reply to an inquiry relative to a certain entry of tin cans for drawback, says: "You state that the cans were manufactured from tin imported more than three years since, and you inquire whether a drawback can be allowed. As a reply, I transmit herewith for your information and guidance a copy of a letter addressed on July 9, 1881, to the collector of customs at New York, expressing the department's concurrence in the opinion obtained, under date of June 29 of the same year, from the attorney-general, 'that manufactured articles entitled to drawback under the provisions of Revised Statutes, Section 3019, are not subject to the limitations of time and amount contained in Sections 3016 and 3017.'"

The History of Windmills.

Atmospheric disturbances causing wind have from a high antiquity been employed as a motive power, and probably the earliest application of this force was the propulsion of ships by sails. Among the most primitive races, long before we made much progress, this power was applied in the navigation of small vessels; and the ancient Phœnicians, Greeks and Romans were all of them well acquainted with this mode of employing the force of the wind for purposes of human industry. It is to be regretted that we have no records of the time when it was applied as a motive power in mills; this event is lost in the oblivion of the past, and it was not till early in the thirteenth century that we find the Dutch and French employed in the construction of windmills adapted to the wants of an energetic and industrious population These times were marked by a growing intelligence that encouraged and fostered inventive talent, and the Dutch millwrights and engineers were long celebrated for their skill and knowledge in every art that had for its object the improvement of the industrial resources of the people. The following account of their ancient history, as far as our knowledge extends, may not be uninteresting to the general reader.

When were windmills introduced into England? The Romans had hand, and cattle and water mills, but "it is very improbable, or much rather false," says Beckmann, "that they had windmills;" nor does there seem to be any sufficient ground for the common notion that Europe derived its windmills from the Saracens through the Crusaders. It is after or about the date of the Norman conquest that we begin to hear mention of mills moved by wind in this quarter of the world. "They were first known in Spain, France and Germany," says one of the authorities quoted by Haydn, "in 1299." When were they first known in England? The "Boldon Book" of 1183 has frequent mention of mills—as, for example, when it speaks of "Gateshead, with its borough and mills, and fisheries and bakehouses, and with three parts of the arable land of the said town, renders 60 marcs." But there is no direct description of the kind of mills which were in use. Though there were horse and water mills at that time, the "Boldon Book" affords us no glimpse of a windmill, with its revolving wands, lending a picturesque air to the scenery of the bishopric. In a volume, however, containing Hugh Pudsey's survey of the county palatine (edited for the Surtees Society by the Rev. William Greenwell), there is also a roll of receipts and expenditures of the 25th year of Bishop Bec (1307), wherein, among repeated mentions of mills, there is specified distinctly not only a water, but a wind, mill.

From this it appears that we did not get our windmills from the Saracens; and the probability is that we had them on this side of Europe before they came into use on the other. It was not till 1332 that Bartolomeo Verde proposed to the Venetians to erect a mill to go by wind; and a site was only granted to him on condition of its surrender if his experiment should fail. Windmills were probably scant at the close of the eleventh century, when the Crusades broke out; but in the twelfth they began to be more common, and "a dispute arose whether the tithes of them belonged to the clergy"—a question which Pope Celestine III very naturally, and not unreasonably, determined in favor of the Church.

An ingenious writer in the "Practical Mechanics' Magazine" states that "about 70 years ago a master mariner residing at Dunbar, in Haddingtonshire, devised a novel windmill on the horizontal construction. It consisted essentially of an upright shaft, which carried four arms, at the extremities of which were four masts rigged with trysails, and the sheets were adjusted so that the sails might take their proper positions, according as they were acted on by a beam wind, 'booming out,' or coming up in the 'wind's eye.'" A mill so constructed would not possess the important element of durability, as the violent jerks imparted to the sheets would very soon snap them. Several mills on the horizontal construction were in use at the town of Eli, in the litigious Kingdom of Fife, at the end of the last century, and were employed in grinding indigo, but they have long since been removed.

About three or four centuries ago the avaricious landholders, favored by the meanness and injustice of Government and the weakness of the people, extended their regality or kingship not only over all streams, but also over the very air and mills which it impelled, so that small proprietors, before erecting a windmill upon their own property, had first to obtain permission from the superior of the province before doing so. The early mills were immovable, and could only work when the wind was in one quarter; they were afterward placed, not on the ground, but on a float which could be moved round in such a manner that the mill should catch every wind. This method gave rise, perhaps, to the invention of movable mills. To turn the mill to the wind, two methods have been invented and are in common use; in the one the whole structure is arranged so as to turn on a post below, and in the other the roof alone, together with the axle and the wings, is movable. Mills of the former kind are called German mills, those of the latter Dutch mills. They were both moved round either by a wheel and pinion within, or by a long lever without, which acted as a stay to the structure, and which was sometimes connected at its extremity to a cart wheel, in order to facilitate its movement horizontally.

During the period of the Crimean war, Sir William Fairbain had an opportunity of examining several of the windmills in European Turkey and also in the Crimea.

Speading of these, in his "Treatise on Mills and Millwork," he says that around the town of Eupatoria, in the Crimea, there appeared to be nearly 200 windmills, chiefly employed in grinding corn. All which were in a workable state were of the vertical construction, and only one horizontal mill, which seemed to have been out of use for at least a quarter of a century. The tower of this mill was built of brickwork, about 20 feet diameter at the base, and about 17 feet at the top and 20 feet high; the revolving wings, which consisted of six sets of arms, appeared to be about 20 feet diameter and about 6 feet broad, fitted with vertical shutters, which were movable on pivots passing through the arms, the shutters being each about 12 inches wide by 5 or 6 feet high, and the pivots were fixed at about one-third of the breadth from the edge of the shutter, in order that the wind might open and shut them at the proper time, during the revolution of the wings. About one-third of the circumference of the wings was surrounded by a segmental screen to shelter the arms and shutters while moving up against the wind, and the screen seemed to have been hauled round with ropes, in order to suit the direction of the wind.

Sir William Fairbain also examined one of the most recently-erected mills on the vertical construction, which had the words "*Moulin Francais*" inscribed upon the door, by way of recommendation. The tower of this mill was also of brickwork, and appeared to be 18 feet diameter at the base, and about 15 feet at the top, and about 22 feet high; the four wings were about 35 feet diameter, and of a rectangular shape, about 15 feet long and 5 feet broad; the surface exposed to the wind was increased or diminished by the application of canvas sails, whose spread could be raised by reefing or twisting up the extreme end of the sails when the mill was in a state of rest. The main axle, which was octagonal in form, was constructed of oak, about 15 inches diameter at the neck, and about 10 inches at the rear end. The front of the axle, which received the arms, was square, and the two pairs of arms did not intersect the axle in the same plane, the one pair being in advance of the other; all the arms butted against the axle, and were united to it by side pieces which were securely bolted to the arms and through the axle, which rendered mortising unnecessary and preserved the strength of the shaft. The bearing in which the neck of the axle revolved seemed to be formed of some hard wood, probably lignumvitæ, and was lubricated with soft-soap and plumbago. The rear end of the shaft was fitted with an iron gudgeon, about 3 inches diameter, secured by iron hoops and wedges. About the middle of its length this axle carried a face-wheel about 4 feet diameter, which was constructed entirely of timber; its arms were mortised through the axle, and secured by iron hoops round the rim, which formed the bearing surface for the friction strap or brake for arresting the speed of the mill. The teeth of this wheel, which were about 3½ or 4 inches broad and 4½ pitch, geared into a trundle or pinion about 14 or 15 inches diameter, fixed on the top of a long, vertical wrought-iron shaft, about 2½ inches square, which was coupled at its lower extremity to the rhynd on the top of the millstone spindle the long shaft being steadied by a bearing near the center of its length to prevent any jarring or vibration being communicated to the revolving millstones.

When Sir W. Fairbain visited the mill, the miller was engaged in laying on the revolving stones; he was thus enabled to see the working faces. The millstones were about 3½ feet in diameter, and were formed of a single stone, similar in appearance to the white silicious burr obtained from the quarries near Rouen. The stones were not indented with roads and channels to assist in grinding and throwing out the flour, but were simply roughened or cracked with the miller's pick. The neck of the mistonell spindle was guided by a bushing of hard wood, with the fiber endways—a mode of bushing employed for more than half a century in the flour mills of this country, and which, no doubt, gave the idea to Mr. Penn, of Greenwich, for his mode of bushing the screw-shafts in our modern steamers, and which was better than gun metal in situations precluding the use of unguents. When the mill was set going, the wings, which were 35 feet diameter, performed 29 revolutions per minute, when loaded, and the extremity of the sails acquired a velocity of about 3200 feet per minute, or nearly 35 miles per hour, and which showed that the "Crim Tartars" knew the importance of letting off their prime movers. It is more than probable that we are indebted to the Dutch for our improved knowledge of windmills and wind as a motive power. Half a century ago nearly the whole of the grinding, stamping, sawing and draining was done by wind in the flat countries, and nearly the whole of our machinery depended on wind, or on water where the necessary fall could be secured. These sources of power, however, are gradually being abandoned, and wind as a motive power of any great importance may be considered as a thing of the past.

Obituary.

A. L. ROTHMAN.

Mr. A. L. Rothman, a civil engineer, died recently at Joliet, Ill. He was connected with the late Alex. L. Holley in constructing and building the Troy Steel Works in 1865–66, and in reconstructing those works after they were burnt in 1869. In 1870 Mr. Holley sent Mr. Rothman to Joliet, to construct the steel works there, and in 1873 he went to Scranton, Pa., where he took full charge of the building of the present Lackawanna steel plant, introducing many leading features of his own. For a time he was employed at the Government office of the Mississippi Survey at St. Louis, returning to Joliet in 1881, where, after reconstructing the works in 1883–84, he became superintendent of the Bessemer department. He leaves a widow and four children He was born in Sweden in 1838.

THE WEEK.

Mr. Edward Atkinson has figured out that 80 per cent. of the people of the United States must be clothed, sheltered and fed on what 40 to 45 cents per day will buy for each person.

Ex-Mayor Powderly, of Scranton, Pa., Grand Master Workman of the Knights of Labor, is said to aspire to the position of Carroll D. Wright, recently appointed head of the Bureau of Labor, of which the organization is already completed, with a corps of agents in various parts of the country to collect statistics concerning the laboring classes.

In the 54 years of which there is any record the River Hudson opened six times in February, 41 times in March and seven in April. The latest was in 1843, when it was almost the middle of April before there was a chance of navigation to Albany.

In announcing that fresh tenders would be invited for pumps in equipping the Suakim-Berber Railway, the representatives of the British Government express doubts whether the work could be done anywhere else as quickly as it had been done by the American firm now engaged on the contract.

The cut in steerage rates between the German steamship lines bids fair to continue more bitterly than ever. Tickets from this port can be purchased for $10—sometimes lower.

Briti-h Columbia is realizing the benefits of its excellent harbors and magnificent forests. Two milling companies, with an aggregate production of 35,000,000 feet of lumber, are now cutting exclusively for the export trade. They ship to China, Australia, Sandwich Islands and even to England.

The item of $500,000 for the armament of the new steel cruisers was either accidentally or purposely omitted in the Naval Appropriation bill as approved by the President.

In the New York Assembly a bill was introduced last week creating a board of three factory commissioners, to be appointed by the Governor, to examine into and determine upon the safe condition of the machinery, &c., in factories, and to make such regulations as will best secure the safety of the employees and their protection.

The steamer Louisiana, of the Cromwell Line, between New York and New Orleans, is becoming famous for quick trips. Last Friday morning she arrived at her destination in 5 days, 9 hours and 15 minutes from wharf to wharf—the quickest trip on record. Her double compound surface-condensing main engine is the first and only one of its kind ever put in a screw steamer. It is 2000 horse-power and only requires 32 tons of coal per day to run it.

The statistics of immigration into the United States from Europe show that there arrived in February 11,019 alien passengers, which is 4843 less than in February, 1884. Germany still leads, but the movement from that quarter is much diminished.

President Barrios, of Guatemala, has been checked by the threatening attitude of President Diaz, of Mexico, in his scheme for a forcible consolidation of the five Central American Republics under a single supreme military head. Guatemala has 1,250,000 inhabitants; Honduras, 800,000; San Salvador, about 400,000; Nicaragua and Costa Rica together have some 500,000.

An iron yacht, 85 feet in length at the water line, for the flag officers of the New York Yacht Club, will be finished within the next 90 days, to defend the America's cup.

Twenty-six machinists who came from Germany in answer to advertisements for the Wabash railway lines immediately affiliated with the strikers on their arrival.

An emery-wheel in the Fort Worth machine shops burst while making 2000 revolutions a minute, and O. D. Denison, a machinist, was instantly killed. In spite of all precautions accidents of this kind are only too frequent.

It is reported that the Hudson River Tunnel, upon which $1,100,000 have been expended thus far, will receive such additional aid from the Baltimore and Ohio Railroad Company that the work will be pushed forward to completion. The cost is estimated at $10,000,000.

The Assembly at Albany, on motion of Mr. Husted, have unanimously adopted a concurrent resolution to adjourn the present session on the 23d of April.

The Pullman car shops, at Detroit, are in course of removal to Pullman, Ill.

An English line of steamers lately run in competition with Alexandre's line to Cuba and Mexico have withdrawn from the field, and all the lines between New York and New Orleans have reduced their service, owing to the scarcity of freights. The fact is all the more noticeable while the exhibition is yet in progress.

A direct four-weekly postal service has been contracted for by the New Zealand Government between the colony and England. The contract is with the New Zealand Shipping Company, which is to keep its five new steel steamships in the service. This is to alternate with the San Francisco mail service, to which New Zealand still clings, although it will be discontinued if the United States Congress does not vote a subsidy in the present session, New South Wales having dropped out of the contract.

The advent of the Clapp-Griffiths process is apt to cause parties who were some time since negotiating with the St. Louis Ore and Steel Company for the lease of the Vulcan plant, for the purpose of making steel for nails, to congratulate themselves upon their failure in making arrangements which, it now appears by comparison of cost, would have had serious disadvantages. One of the companies is a subscriber to the corporation now being organized—that is, to control the right under the patents.

The complications that have come to the surface in the West in several suits of bondholders for foreclosures of mortgages of companies whose affairs are in the hands of receivers, will have a tendency to make the sale of bonds on similar plants somewhat difficult in the future, and may also make it necessary to put higher rates of interest as inducements to purchasers.

The first cable railway in St. Louis is now in course of construction. It is expected that it will be in operation by next August.

That "a good description is a difficult thing" is shown by the recent decision of the Supreme Court of Missouri in a suit of Chouteau, Harrison and Valle Iron Company *vs.* Shickle, Harrison and Howard. The trouble between them originated in the specification or description of a "lot" of scrap gunboat plate iron, bought by the first company of the latter. Of course an advance in price of the scrap before delivery of the pile or lot had a forcible bearing on the sellers.

The St. Louis Gas-Light Company have placed with a Cincinnati firm the order for a gasometer, to be put in place of the one that was demolished by the breaking of the cast-iron pillars during the severe cold spell several months since. The contract price is said to be nearly $40,000, and the gasometer is to be completed in six months.

The lack of banking capital, which has caused much complaint within the past two years in Missouri, is somewhat relieved by the recent repeal of the law that prevented foreign corporations and capitalists from loaning money in that State.

It is stated that the anthracite collieries of the Wyoming Valley Coal Company have been sold to the Lehigh Valley Coal Company for $200,000.

The chief engineer of the Anniston and Chattanooga railroad reports that the preliminary survey shows that the distance by the proposed line from Anniston, Ala., to Chattanooga, is about 120 miles. From 15 miles north of Anniston to Crawfish Springs the road passes over a continuous bed of red and brown hematite iron ore. South of Coosa River it passes through an extensive tract of yellow pine, while on most of the roads there are large forests of hardwood of different varieties. The road will be crossed by the East and West Railroad, giving it a direct connection with the Broken Arrow coal fields.

It is proposed to build a narrow-gauge railroad from Spartanburgh, S. C., northward to a connection with the East Tennessee and Western North Carolina road at Cranberry, N. C. The distance is about 100 miles, and it is thought that a sufficient amount to meet over one-half the cost of the road can be secured in county and town subscriptions.

The Franklin Copper Mining Company of Michigan made a profit of $64,598.05 in the year 1884, on an output of 3,748,652 pounds of ingot copper. Their sales were 3,228,241 pounds, for which they realized as an average price 13.628 cents—certainly an excellent showing. The mill crushed 128,878 tons of rock yielding only 1.45 per cent. of copper. The cost of delivering the impure copper, called "mineral," to the smelting works was $2.22 per ton, and it is stated that this year it will be less than $2 per ton.

Vermont boasts of a profitable gold mine, the Rooks. From an annual report sent us it appears that the mine produced from September, 1883, to January, 1885, $68,070 in gold, and paid four dividends aggregating $46,000, the yield varying between $33.88 and $50.79, while the cost declined from $10.15 to $7.20 per ton for mining and milling. The mine is located at Plymouth.

It is announced that the Phœnix Iron Company will pay off on April 1 $50,000 of the company's 7 per cent. bonds.

Several Montreal gentlemen connected with the hardware trade, consisting of Mr. Edward Murphy, of Frothingham, Workman & Co.; Mr. Benny, Colonel Hatton and two other gentlemen, waited upon the Minister of Customs, last week, at Ottawa, for the purpose of getting some relaxation in reference to the changes in the tariff affecting the hardware trade. It is understood, also, that strong objection was taken to one of the clauses of the new tariff that permits manufacturers to import certain raw materials free, but does not give the same privilege to merchants who are not manufacturers, and the latter claim this to be unfair.

Some interesting experiments, according to the *Journal* of the Iron and Steel Institute, have recently been made for the purpose of determining the respective values of wet and dry coal for the evaporation of water. The results showed that small coal, containing 18 per cent. of water and 9% per cent. coal dust, evaporated 5⅞ pounds of water per pound of fuel; while the same amount of coal, containing 3 per cent. of water, evaporated from 8 to 8½ pounds of water per pound of fuel. The figures showed that the employment of wet coal gave rise to a loss of from 15 to 25 per cent.

The aggregate amount of capital of newly-organized joint-stock companies in England within the past four years is surprising. An official British statement shows that in 1884, notwithstanding the stagnation in all sorts of legitimate business, 1280 new joint-stock companies were registered in London, with a capital of $590,000,000, against $667,860,000 in 1883, $832,165,000 in 1882, and $805,220,000 in 1881. Here were companies with a capital of nearly $3,000,000,000 created within four years, while for the seven preceding years the total never exceeded $425,000,000 in any year, and sometimes only half that amount. The staid Britishers are evidently beginning to appreciate the advantages of copious admixtures of "water."

Advices from Rio as late as February 12 speak of serious financial difficulties caused by constant drafts on the banks by the Government, which has absorbed almost the entire available capital. The debt of the Treasury to the banks already amounts to $45,000,000, exclusive of $10,000,000 to the Bank of Brazil. The chief embarrassment is among the planters, who are unable to obtain advances until their products are actually delivered. Otherwise the commercial position is believed to be sound.

In Liberty street, in this city, where many firms deal in heavy machinery, the proposed cable road is strongly resisted, the principal objection being that the street is the main down-town outlet for trucks bound to the North River and Jersey City freight depots.

The New York Steam Heating Company, in their reply to Commissioner Squire accusing them of injury to the streets, acknowledge a technical breach of propriety, and say that in future they will comply with all legal requirements.

Two new steel steamers for the fruit trade between the United States and the West Indies are now being built on the River Clyde, on American account. They are to be 600 tons net and about 1000 gross, guaranteed to have a speed of 12 knots per hour. One of the steamers will arrive in this port early next month. The reason given for their being built abroad is that the Scotch shipbuilders contracted to build them on two years' time.

A screw-pile iron lighthouse is to be placed in position at Romer's Shoal, New York Bay, $25,000 having been appropriated for this purpose. It will be 50 feet high, with a dwelling-house for the keeper elevated on the piles, and a tower for the light surmounting the structure. Except $250,000 for range beacons along the Niagara River, this was the only appropriation made for New York.

It is stated in Paris that M. Fournier, Minister of Commerce, will ask the Chamber of Deputies to repeal the law prohibiting the importation of American meat. This action will be with a view to allaying the feeling aroused by the increase of the import duties on corn.

The withdrawal of all the treaties from the Senate will materially shorten the executive session.

Prof. Henry Morton, of the Stevens Institute of Technology, of Hoboken, N. J., has tendered his resignation as member of the Lighthouse Board and Walter S. Franklin has been appointed in his place.

Discussion having arisen in the Dominion respecting the source from which supplies were purchased for the Canadian Pacific Railway, the Montreal *Herald* affirms that of the general supplies purchased in 1884, which aggregated $4,000,000, only $100,000 worth, or about 2½ per cent., was bought outside of Canada. Including rails, which had to be imported, and all other expenditures in England and the United States, over 93 per cent. of the $22,000,000 or $23,000,000 which the company expended in 1884 was paid to the people of Canada.

The Boadway Arcade Railway scheme has turned up again. It passed both Houses last year and was vetoed by Governor Cleveland. The bill gives the company authority to build a roadway underneath Broadway from the Battery to Forty-second street. Work on it must be begun within a year and the tunnel completed within four years.

Herat, the center of threatened hostilities in the East, has for years past been the gate through which Manchester cottons and calicoes, Sheffield cutlery and Birmingham hardware have poured into Central Asia to crowd out Russian goods, $30,000,000 worth of such wares passing yearly through Bokhara alone.

A mechanic in the employ of J. H. McGowan & Co., of Cincinnati, clutched at an electric-light wire above the roof of the Gibson House, and instantly fell dead.

The Supreme Court in Philadelphia have affirmed the decision of a lower court that unmined coal is not taxable apart from the surface land above, unless the ownership of the two be in separate parties.

The representatives of the companies shipping anthracite coal to the West will hold a meeting in this city on the 25th. If they attempt to stop the innumerable leaks which have characterized their agreements in the past, they will have to sit for days and display an extraordinary patience.

Commissioner Fink has i sued a statement showing amounts of east-bound dead freight carried by the various roads in the east-bound pool from Chicago for the year 1884 It will be seen by the subjoined statement that the percentages carried by most of the roads come very close to the percentages allotted by Judge Cooley a month or two ago, and which are now in effect:

	Tons.	Carried.	Allotted.
Grand Trunk	417,345	14.7	13
Michigan Central	560,105	19.7	20
Lake Shore	370,087	13.2	16
Fort Wayne	474,653	16.7	18.5
Pan Handle	222,140	7.8	8.6
Baltimore and Ohio	231,672	8.2	6.6
Nickel Plate	286,916	10.1	7 8
Chicago and Alton	272,853	9.6	9.5

The Government of Peru is considering a project for the establishment of three industrial schools of trade in the north, center and south of the Republic, respectively, in order to afford practical education to the youth of the country.

The Electric Power Company, whose headquarters are near Spruce street, this city, has been formed for the purpose of transmitting and distributing power by means of electric wires under ground. The nominal capital is $600,000.

A 50-horse-power dynamo has been sent from this city by the Daft Electric Light Company, to be used to generate power for a line of street cars in Baltimore.

The Vera Cruz Railway to the capital of Mexico will be reduced in competition with the northern route via the Mexican Central.

The Connecticut House has passed a bill creating a Bureau of Labor Statistics, following the example of Massachusetts. Under a suitable head the results may prove advantageous, but the experience of former years is not encouraging.

Chili copper bars sold in London last week at £45. 15/, the lowest price ever recorded.

The Canadian Minister of Finance has been informed, according to a report from Ottawa, that the work of construction on the Canadian Pacific Railway must be stopped unless the Government soon comes to its relief.

As an additional safeguard against the introduction of cholera through old rags imported from Europe, the Secretary of the Treasury has given his approval to the location of a covered lighter at the quarantine station in the lower bay, for the disinfection by the superheated-steam process of such rags as may come from countries regarded as infected.

The Treasury Department decides that so-called antimonial lead, containing about 97½ per cent. of lead, with a small quantity of arsenic and antimony, is dutiable as lead in pigs, under Paragraph 189, at 2 cents per pound, and not as claimed at 20 per cent. ad valorem, under the provision for type metal.

Ever since the fall of Khartoum the British Admiralty Office has been quietly hiring all the available steamers that could be spared for the transportation of troops to Egypt or India. Ninety transports have now been put in commission, and 50 more are registered to be called upon for contingencies. The maximum rate of freight at which these vessels have been chartered is 18/ per ton.

According to the decision of the International Arbitration Court on the Peruvian war claims, Chili is assessed $29,000,000 in favor of Peru.

Steel gun-barrel ribs, imported in connection with shotgun barrels, the value of which is included in the price of the barrels, are not separately dutiable, but are to be assessed with duty as part of the guns to which they belong.

It is reported that a vein of bituminous coal has been discovered in Mexico, near the line of the Central Railroad.

The Russians believe their defense of the European coast line to be perfect, since they have 117 torpedo boats, or a score more than England, and a sufficient navy for its defense.

Brooklyn will formally celebrate the opening of the first elevated railroad in that city about June 1. Ten engines from the Providence Locomotive Works have been received.

The weavers of Philadelphia who have been out four months on a strike have lost $1,000,000 in wages, and their families are suffering.

Charles S. Fairchild, Assistant Secretary of the Treasury, will succeed to the business relating to the customs, special agents, life-saving, lighthouses and other services heretofore under charge of Assistant Secretary French.

It is understood that General Foster is to be retained as Minister to Spain for the present, with a view of conducting negotiations for a more favorable treaty.

The revenues collected from wharves and docks in New York last year amounted to $1,246,858, and have steadily increased every year, while the expenses are diminishing.

The French declaration making rice contraband of war is directed against British and American shipping, and is intended as a retaliation for Hong Kong's being made a neutral port.

Engineer Roebling says that heavy engines and cars must not be run over the East River Bridge; that the middle cables have on them all the load they ought to carry.

In the Canadian House of Commons, on the 16th inst., Sir John Macdonald said that the Government had granted the Halifax Steamship Company a subsidy of $50,000 for a line of steamships between Canada and France, and that the service would commence in the spring.

French financiers who have resumed negotiations with the Latin Union respecting silver coinage express a hope that the United States will recognize "a real and not fictitious value."

There are 20,000 cases "hung up" in the Patent Commissioner's office awaiting action, mostly on some technical point, which it is thought may be overcome by a slight change in the system.

Wm. H. Webb, the veteran builder of the Russian ironclad Dunderburg, sent out from this city some years ago, has no knowledge of the reported new contracts in New York.

The commissioners having reported in favor of a horse railroad in Broadway, and their decision having been confirmed by the Supreme Court, the work is likely to commence without delay. The city will receive from the road an annual rental of $40,000 and 3 per cent. of the gross earnings for the first five years, and 5 per cent. thereafter perpetually. It is estimated that the gross receipts will reach nearly $1,000,000 annually, which would make the income to the city for the first five years about $70,000.

Reduction of Wages in Iron Mills.

Reliable statistics as to the condition of industry are of the greatest value. Those who have ever undertaken to collect them know the difficulty, however, in securing figures that shall be reliable. This is forcibly felt by any statistician who has given his attention even to only a single industry, and who attempts to collect data concerning the accuracy of which there should be no doubt. When the subject to be investigated is a complicated one, and when its discussion involves the study of a number of facts and many industries dependent upon one another, the difficulties multiply so rapidly that it becomes nearly impossible to secure reliable averages. These remarks apply especially to any attempt to ascertain facts regarding wages and conditions affecting the wage earners. The experience of those best acquainted with these matters who we know have made the most persistent and intelligent efforts to arrive at fair averages has proven that it is impossible to secure them. We have so frequently referred to this that we need not enter into arguments and illustrations to show the truth of the conclusion.

We are led to these remarks by a statement, recently published, purporting to give the average per cent. reductions in wages since the middle of 1882 in a number of industries covering either the entire country or the country with such divisons as Eastern and Western. The portion of this report referring to what it terms "metal products" is as follows:

Blast furnaces (Eastern)	11
Blast furnaces (Southern)	20
Blast furnaces (Western)	12
Iron mills (Eastern)	15 @ 22
Iron mils (Western)	15 @ 22
Steel rail (Western)	30
Steel rail (Eastern)	20
Nail mill (Western, in rate paid)	None
Tinware	10
Agricultural implements	Little
Foundry and machine	10 @ 15

The data for ascertaining the correctness of this report as to all except the iron mills are not at hand, but it is not difficult to ascertain the probable and relative correctness of the statements in the above table so far as they relate to the wages in the Eastern and Western iron mills. It is evident to those who are acquainted with the course of wage in these mills through a series of years that, if the average rate of reduction in the Eastern iron mills has been 15.22 per cent., it has been less than this in the Western mills. The latter, as is well known, are governed by the scale of wages that applies to all. Since 1882—indeed since May 5, 1880—there have been no reductions in the classes of labor affected by this scale, but there have been some advances. This scale determines the rates of wages of all skilled labor in the iron mills—puddlers, muck, bar, guide, sheet and plate rollers, scrapping and busheling, heating, knobbling, &c. Now, in all these classes of labor, which constitute in the aggregate a great majority of the workingmen in the iron mills, there has been no reduction in the West. The scale of wages in operation in June, 1882, is practically the same as to-day, and all the classes of labor affected by it in all of the mills of the West are paid the same wages to-day that they were paid in 1882. The wages reductions in the Western mills have fallen upon what are known as unskilled workmen, and these constitute but a small proportion of the mill force. On the other hand, all classes of labor have been reduced in the East—puddlers, rollers and heaters, as well as common labor. The several reductions in the rates paid to common labor have probably been as great in the East as in the West, but it must be remembered that skilled labor has been reduced East while it has not been reduced West. Therefore the average reduction East must be greater than the average reduction West.

Taxation of Savings Banks Deposits.

Noticing the vigorous defense made by the New York State Bank Superintendent against the proposed taxation of their deposits, the New York *Journal of Commerce* says:

Banks are not beloved by the thriftless and impecunious, and these outnumber the 1,165,174 depositors who formed the army of savings bank depositors on the first of the year. The motives of such hostility are not worthy of respect. Going still further down to the root of the difficulty, we find the communistic desire for a division of property. The men who would tax the savings banks deposits are those who would be glad to assist in the partition of the hoards among their own lazy and shiftless kind. The issue of socialism is, in fact, involved in that of the proposed taxation. Every savings bank depositor has a stake in the preservation of law and order. The Communists of Paris who revived the reign of terror of 1870 were men who had nothing to lose. They were neither landed proprietors, nor bank depositors, nor shopkeepers, nor workingmen. They were the idle and vicious and (with the exception of a few leaders who prostituted their knowledge to a blind ambition) the ignorant classes of Paris. Outside of that city and two or three other populous centers of France communism never had a foothold, because the peasants and the operatives, as a rule, are owners of something which the anarchists would bury in the general ruin. The industrial classes of France, to an extent unknown elsewhere, either own land or have investments in the funds, and may be counted among the conservators of society against the destructive forces of communism. For precisely the same reasons we may securely reckon on the alliance of every savings bank depositor in resisting the spread of doctrines which threaten the stability of our institutions. And in order that the value of their support may not be diminished, no law should be passed calculated in its effect to discourage those habits of frugality which are best promoted by a well-devised savings bank system. The savings banks should receive every proper protection and encouragement from the State.

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- White L. & I. J., Buffalo, N. Y. ... 46

Elevators, *Makers of.*
- Morse, Williams & Co., Philadelphia, Pa. 51
- Stokes & Parrish Machine Co., Philadelphia. ... 50

Emery.
- Union Stone Co., Boston, Mass. ... 36
- Walpole Emery Mills, South Walpole ... 28

Emery Wheels.
- Union Stone Co., Boston, Mass ... 11

Engines, Gas.
- Clerk Gas Engine Co., Philadelphia, Pa. .51
- National Meter Co., 51 Chambers, N. Y. .45
- Schleicher, Schumm & Co., Phila. ... 51

Engines, Steam. *Makers of.*
- Cooke & Co., 22 Cortlandt, N. Y. ... 9
- The Cummer Engine Co., Cleveland, O. ... 42
- Mecklenburg Iron Works, Charlotte, N. C. 41
- N. Y. Safety Steam Power Co., 30 Cortlandt, N. Y. ... 17
- The Norwalk Iron Works Co., S. Norwalk. 50
- The Pusey & Jones Co., Wilmington ... 51
- The Westinghouse Machine Co. ... 43
- Wetherill Robt. & Co., Chester, Pa. ... 51

Engravers, Wood.
- Crosscup & West Engraving Co., Philadelphia, Pa. ... 45

Expanding Mandrels.
- Cooke & Co., 22 Cortlandt, N. Y. ... 9

Facings, Foundry.
- Emerick J. A. & Co., Philadelphia, Pa. ... 3
- Paxson J. W. & Co., 514 Beech, Phila. ... 5
- S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O. ... 17

Farm and Garden Tools.
- Withington & Cooley Mfg. Co., Jackson, Mich. ... 39

Farming Tools.
- Iowa Farming Tool Co., Fort Madison, Iowa ... 50

Farriers' Tools.
- Heller & Bros., Newark, N. J. ... 8

Faucets. *Makers of.*
- McNab & Harlin Mfg. Co., 56 John, N. Y. .49
- John Sommer's Son, Newark, N. J. ... 6
- United Brass Co., 79 Fulton, N. Y. ... 37

Faucets, *Self-Measuring, Makers of.*
- Enterprise Mfg. Co. of Pa., Phila. & N. Y. 46

Feed Water Purifiers.
- Hall & Sons, Buffalo, N. Y. ... 4

Fences, Wrought Iron.
- National Wire and Iron Co., Detroit ... 3

Files and Rasps.
- Madden & Cockayne File Co., Middletown, N. Y. ... 52

Files, *Importers of.*
- Carr J. & Riley, 30 Gold, N. Y. ... 44
- Montgomery & Co., 105 Fulton, N. Y. ... 10
- Moss, F. W. 80 John, N. Y. ... 44

Files, *Manufacturers of.*
- Barnett G & H., 41 & 43 Richmond, Phila. 8
- Disston Henry & Sons, Philadelphia, Pa. .40
- Everhart, James M., Scranton, Pa. ... 52
- Flagler, Forsyth & Bradley, 298 Broadway, N. Y. ... 34
- Hennsler, Christian, Philadelphia, Pa. ... 8
- McCaffrey & Bro., 1732 & 1734 N 4th, Phil. 8
- New Am. File Co., Pawtucket, R. I. ... 43
- Nicholson File Co., Providence, R. I. ... 8
- Paul Chas. B., Williamsburg, N. Y. ... 8
- Union File Co., Baltimore, Md. ... 8

Fire Brick, *Makers of.*
- Borgner & O'Brien, Philadelphia, Pa. ... 46
- Gardner James, Pittsburgh, Pa. ... 46
- Kreischer B. & Sons, foot E. Houston, N. Y. 46
- Newton & Co., Albany, N. Y. ... 46
- Ostrander James & Son, Troy, N. Y ... 46
- Union Mining Co., Philadelphia, Pa. ... 46
- Valentine M. D. & Bro., Woodbridge ... 46

Forges, Portable, &c.
- Bradley & Co., Syracuse, N. Y. ... 52
- Buffalo Forge Co., Buffalo, N. Y. ... 14
- Bullock T. H., Cleveland, O. ... 14
- Day Bros., Philadelphia, Pa. ... 28
- Empire Portable Forge Co., Cohoes, N. Y. 48

Forgings, Iron and Steel.
- Hicks & Dickey, Philadelphia, Pa. ... 6
- Pennsylva. Steel Co., Dauphin Co., Pa. ... 12

Foundry Supplies.
- Emerick J. A. & Co., Philadelphia, Pa. ... 3

Friction Clutches.
- Bates H. N., Boston, Mass ... 49

Fronts and Rosettes.
- National Front Co., Knoxville, Tenn ... 34

Furnace Hoists.
- Stokes & Parrish Machine Co., Phila, Pa. 50

Furnace Lamps.
- Taylor & Boggis Fdry. Co., Cleveland, O. .41

Gates, Folding.
- Composite Iron Wks. Co., 93 Church, N. Y. 3

Glass Cutters.
- Andress Thos. J., Philadelphia, Pa. ... 48

Gin Ribs, &c.
- Chas. F. Lombard, Augusta, Ga. ... 4

Grain and Seed Separators.
- Newark Machine Co., Columbus, O. ... 13

Grinders' and Polishers' Supplies.
- Union Stone Co., Boston, Mass ... 36

Grindstones.
- Lombard & Co., Boston, Mass. ... 39
- Berea & Huron Stone Co., Cleveland, O. .39
- Ohio Grindstone Co., Cleveland, O. ... 39
- Wood, Walter R., 283 and 285 Front, N. Y. 39

Gunpowder, *Makers of.*
- Laflin & Rand Powder Co., 29 Murray, N. Y. 8

Hammers.
- Buffalo Hammer Co., Buffalo, N. Y. ... 51
- Hartford Hammer Co., Hartford ... 43

Hammers, Steam.
- Bradley & Co., Syracuse, N. Y. ... 52

Hand Force Pumps.
- Union Mfg. Co., 96 Chambers, N. Y. ... 7

Hardware Comm'n Merchants.
- Field Alfred & Co., 93 Chambers, N. Y. ... 10
- Graham J. H. & Co., 113 Chambers, N. Y. . 8
- Haines, Samuel A, 88 Chambers, N. Y. ... 12

Hardware Importers.
- Field Alfred & Co., 93 Chambers, N. Y. ... 10

Hardware Manufacturers.
- Enterprise Mfg. Co., Philadelphia ... 46
- Shepard Hardware Co., Buffalo, N. Y. ... 31
- Stanley Works, New Britain, Conn. ... 43
- Union Mfg. Co., 96 Chambers, N. Y. ... 7

Hardware Specialties.
- Acme Shear Co., Bridgeport, Conn. ... 41
- Amidon & White, Buffalo, N. Y. ... 47
- Andress Thos. J., Philadelphia, Pa. ... 48
- Globe Mfg. Co., Philadelphia, Pa. ... 32
- Howe Bros. & Hulbert, West Winsted, Conn. ... 36
- Leavenworth, F. H. & Co., Detroit, Mich. .10
- Manhattan Hdw. Co., Reading, Pa. ... 16
- Moore S. H. & E. Y., Chicago, Ill. ... 31
- Rex A. C. & Co., Philadelphia, Pa. ... 28
- Shepard Hardware Co., Buffalo, N. Y. ... 31
- Underhill, Clinch & Co., 91 Chambers, N. Y. 10

Hardware, Theatrical.
- Martin Samuel, 127 Eighth av., N. Y. ... 7

Harness Snaps.
- Covert Mfg. Co., West Troy, N. Y. ... 50
- The Meneely Hardware Co., West Troy .. 10

Hay Knives.
- Hiram Holt & Co., East Wilton, Me. ... 8

Hinges.
- Stanley Works, New Britain, Conn. ... 43
- Union Mfg. Co., 96 Chambers, N. Y. ... 7

Hoes.
- Bruce George W., 1 Platt, N. Y. ... 9

Hoes and Rakes.
- Bare M., Hamilton, O. ... 35

Hog Ringers.
- Chambers, Bering & Quinlan, Decatur ... 4

Hoisting Machines.
- Box Alfred & Co., 314 Green, Phila ... 49
- Morse, Williams & Co., Philadelphia, Pa. 51
- Maynard J. Q., 12 Cortlandt, New York .. 7
- Moore S. H. & E. Y., Chicago, Ill. ... 31
- Sellers Wm. & Co., Philadelphia, and 79 Liberty st., N. Y. ... 51
- Stokes & Parrish Machine Co., Phila., Pa. 50

Hooks.
- Penn Hdw. Works, Reading, Pa. ... 17

Hooks (Cotton & Bale).
- New York Handle & Mallet Works, 456 E. Houston, N. Y. ... 13

Horse Nails, *Makers of.*
- Champion Horse Nail Co., Appleton, Wis. 49
- Essex Horse Nail Co., Essex, N. Y. ... 9
- National Horse Nail Co., Vergennes, Vt. .28
- Northwestern Horse Nail Co, Chicago ... 39

Horse Rasps and Files.
- Heller & Bro., Newark, N. J. ... 8

Horse Shoes, *Makers of.*
- Rhode Island Horse Shoe Co., Providence. 12
- The Burden Iron Co., Troy, N. Y ... 4

Hot-Blast Stoves.
- Witherow James P., Pittsburgh, Pa. ... 4

Household Articles.
- The F. F. Adams Co., Erie, Pa. ... 38

Hydrants, &c.
- McLean John, 296 & 298 Monroe, N. Y. ... 12

Hydraulic Jacks.
- Dudgeon Richard, 24 Columbia, N. Y. ... 9
- Watson & Stillman, 470B Grand, N. Y. ... 50

Ice-Cream Freezers.
- Gooch Freezer Co., Cincinnati, O. ... 45
- White Mountain Freezer Co., Nashua ... 36

Ice Crushers.
- G. F. Warher Mfg. Co., New Haven, Conn. 46

Insurance, Boiler.
- Hartford Steam Boiler Inspection & Insurance Co. ... 42

Iron, *Manufacturers' Agents.*
- Cox Justice, Jr., & Co., 333 Walnut, Phil. . 5
- Hicks & Dickey, Philadelphia, Pa. ... 6
- Hoffman J. W. & Co., 208 S. 4th, Phila. ... 5
- Levis Henry & Co., Philadelphia, Pa. ... 5

Iron, *Manufacturers of.*
- Albany & Rensselaer Iron & Steel Co., Troy, N. Y. ... 44
- Burden Iron Co., Troy, N. Y. ... 4
- Calumet Iron & Steel Co., Chicago, Ill. ... 6
- Keystone Rolling Mill, Ld., Pittsburgh ... 4
- Kirkpatrick & Co., Pittsburgh, Pa ... 4
- Leonard John, 450 West St., N. Y. ... 4
- Montour Iron & Steel Co., Danville, Pa. .. 44
- Phoenix Iron Co., 410 Walnut, Phila. ... 5
- Riverside Iron Works, Wheeling, W. Va. 7
- Rowland James & Co., 920 N. Delaware av., Phila. ... 5
- The Passaic Rolling Mill Co., Paterson ... 4
- The Wilmot & Hobbs Mfg. Co., Bridgeport, Conn. ... 32
- Ulster Iron Works, Saugerties, Ulster Co., N. Y ... 4
- Whitney A. R. & Co., 58 Hudson, N. Y. ... 4
- Wood Alan & Co., Arch, Philadelphia ... 5

Iron and Steel, Swedish.
- Lewander & Co., Boston, Mass. ... 45

Iron Brokers.
- Etting Edward J., Philadelphia, Pa. ... 5
- Fox & Drummond, 68 Wall, N. Y. ... 4
- Walbaum W. H., Philadelphia, Pa. ... 5
- Watts Ethelbert & Co., Philadelphia, Pa. 5

Iron Commission Merchants.
- Haines Samuel A., 88 Chambers, N. Y. ... 12
- Hart Wm. R. & Co., Philadelphia, Pa. ... 5
- John L. Hogan, Philadelphia, Pa. ... 5
- Lea J. Tatnall & Co., Philadelphia ... 5
- Lundberg Gustaf, Boston, Mass. ... 45
- Mohr J. J., 430 Walnut, Philadelphia ... 5
- Wister L. & R. & Co. Philadelphia, Pa ... 5

Iron Dealers.
- Abeel Brothers, 190 South, N. Y. ... 4
- Abbott Jere & Co., N. Y. and Boston ... 45
- Bonnell, Botsford & Co., Youngstown ... 4
- Borden & Lovell, 70 and 71 West, N. Y. ... 4
- Cooney Daniel F., 88 Washington, N. Y. ... 4
- Cox Justice, Jr., & Co., Philadelphia ... 5
- Egleston Bros. & Co., 160 South, N. Y. ... 4
- Harrison & Gilloon, 558 to 562 Water, N. Y. ... 4
- Hart, Wm. R. & Co., Philadelphia ... 5
- Himrod Chas. & Co., Chicago, Ill. ... 4
- Hoffman J. W. & Co., 208 S. Fourth, Phil. 5
- Judson B. F., 457 and 459 Water, N. Y. ... 4
- Keeley Jerome & Co., Philadelphia, Pa. .. 5
- Lindsay & Parvin, Philadelphia ... 5
- Lundberg Gustaf, 38 Kilby, Boston ... 45
- Naylor & Co., 99 John, N. Y. ... 44
- Ogden & Wallace, 85 to 91 Elm, N. Y. ... 4
- Pierson & Co., 24 to 27 West, N. Y. ... 4
- Pullman J. Wesley, Philadelphia, Pa. ... 5
- Wallace Wm. H. & Co., Albany & Washington streets, N. Y. ... 4
- Wilson E. H. & Co., Philadelphia, Pa. ... 5
- Whitney A. R. & Co. 58 Hudson N. Y. ... 4

Iron Founders.
- Bannan, Fras. B. Pottsville, Pa. ... 4

Iron Ore.
- J. W. Pullman, Philadelphia, Pa. ... 5

Iron Pig, *Importers of*
- Abbott Jere & Co. (Swedish), New York & Boston ... 45
- Page, Newell & Co., Boston, Mass. ... 45
- Williamson James & Co. 63 Wall, N. Y. ... 4

Iron Planers.
- Brettel Geo. E. Rochester, N. Y. ... 51

Iron Sheet, *Manufacturers of.*
- Allan Wood & Co., Philadelphia, Pa. ... 34
- Everson, Brown & Co., Pittsburgh, Pa. ... 4
- Jersey City Galvanizing Co., Jersey City. 4
- Lefferts, Marshall & Co., 90 Beekman, N. Y 4
- Merry John & Co., 535 to 547 W. 15th, N. Y. 8
- Wood W. D. & Co., Limited, Pittsburgh ... 4

Iron, Steel and Nails.
- Morris, Wheeler & Co., 14 Cliff, N. Y. ... 5

Irons, Laundry and Sad
- New England Butt Co., Providence, R. I. .46

Jack Screws.
- Illinois Iron & Bolt Co., Carpentersville .28

Key Blanks.
- Eagle Lock Co., 98 Chambers, N. Y. ... 42

Lamp Stoves.
- Florence Machine Co., Florence, Mass. ... 9

Lathes.
- Harrington, E. & Son, Philadelphia ... 51
- Ohl Geo. A. & Co., East Newark, N. J. ... 51

Lawn Mowers.
- Blair Mfg. Co., Springfield, Mass ... 38
- Brower John, 81 Murray, N. Y. ... 4
- Chadborne & Coldwell Mfg. Co., Newburg, N. Y. ... 38
- Dille & McGuire Mfg. Co., Richmond, Ind. 47
- Lloyd & Supplee Hdw Co., Philadelphia. 28
- Mast, Foos & Co., Springfield, O. ... 48

Lemon Squeezers.
- Ripley Mfg. Co., Unionville, Conn. ... 43

Locks and Knobs. *Manufacturers of*
- Durrie & McCarty, 97 Chambers, N. Y. ... 28
- Eagle Lock Co., 98 Chambers, N. Y. ... 42
- Nimick & Brittan Mfg. Co., Pittsburgh ... 28
- Quackenbush J. E. & Son, 535 8th av., N. Y. 2
- Smith & Egge Mfg. Co., Bridgeport ... 51
- Taylor Mfg. Co., New Britain, Conn. ... 12
- The Charles Parker Co., Meriden ... 42

Machinery.
- Adt John & Son, New Haven, Conn. ... 49
- Barnes W. F. & John, Rockford, Ill. ... 46
- Garvin E. E. & Co., 139 Center, N. Y. ... 51
- Harrington E. & Son, Philadelphia ... 51
- Mecklenburg Iron Works, Charlotte, N. C. 41
- Peerless Punch & Shear Co., 38 W. Dey, N. Y. ... 51
- Pittsburgh Mfg. Co., Pittsburgh, Pa. ... 49
- Sellers Wm. & Co., Philadelphia, and 79 Liberty, N. Y. ... 51
- Stokes & Parrish Machine Co., Philadelphia, Pa. ... 50
- Stow Flexible Shaft Co., Ld., Phila. ... 51
- The Stiles & Parker Press Co., Middletown, Conn. ... 52
- Union Foundry & Pullman Car Wheel Works, Chicago, Ill. ... 41
- Wetherill Robert & Co., Chester, Pa. ... 51

Machinists' Tools and Supplies.
- Blaisdell P. & Co., Worcester, Mass. ... 49
- Brettell Geo. E., Rochester, N. Y. ... 51
- King J. M. & Co., Waterford, N. Y. ... 8
- Sellers Wm. & Co., Philadelphia, and 79 Liberty, N. Y. ... 51
- Starrett, L. S., Athol, Mass. ... 3
- Wells Bros. & Co., Greenfield, Mass. ... 42

Mallets.
- N. Y. Handle & Mallet Works, 456 E. Houston ... 13
- Penfield Block Co., Lockport, N. Y. ... 14

Measuring Faucets.
- Lane Bros., Poughkeepsie, N. Y. ... 43

Measuring Tapes.
- Eddy Geo. M. & Co., 352 Classon av., Brooklyn ... 6

Metal Polish.
- Matchless Metal Polish Co., 198 and 200 Market, Chicago, Ill ... 49

Metals.
- Dickerson, Van Dusen & Co., 29 and 31 Cliff, N. Y. ... 2
- Naylor & Co., 99 John, N. Y. ... 44
- Phelps, Dodge & Co., Cliff st., N. Y. ... 2
- Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia ... 13

Metallurgists.
- Booth, Garrett & Blair, 919 Chant, Phila .. 5
- Britton J. Blodgett, 330 Walnut, Phila. .. 44

Mills, Bone Grinding.
- Wilson Bros., Easton, Pa. ... 49

Mine Lamps.
- Leonard Bros., Scranton ... 7

Molding Sand.
- Emerick J. A. & Co., 1056 Beach, Phila. ... 3
- Paxson J. W. & Co., 514 Beach, Phila. ... 5

Mouse Traps.
- Lovell Mfg. Co., Erie, Pa. ... 11
- Ripley Mfg. Co., Unionville, Conn. ... 43
- The F. F. Adams Co., Erie, Pa. ... 38

Nail Machinery.
- Pittsburgh Mfg. Co., Pittsburgh, Pa. ... 49

Nail Pullers.
- Dirigo Tool Co., New York ... 34

Nails.
- Bellaire Nail Works, Bellaire, O. ... 17
- Borden & Lovell, 70 West, N. Y. ... 4
- E. & G. Brooke Iron Co., Birdsboro ... 7
- Cumberland Nail & Iron Co, Phila. ... 5
- Fuller Bros. & Co., 139 Greenwich, N. Y. . 4
- Livingston Horse Nail Co., 104 Reade, N. Y. ... 14
- Oxford Iron Co., 81 Washington, N. Y. ... 4
- Riverside Iron Works, Wheeling, W. Va. 7
- Rowland Jas. & Co., 920 North Delaware av., Philadelphia ... 5
- Virginia Nail and Iron Works Co., Lynchburg, Va. ... 14

Nails, Cut.
- Blankenship R. E., Richmond, Va. ... 7
- Borden & Lovell, 70 West, N. Y. ... 4
- La Belle Iron Works, Wheeling, W. Va. .43
- Ross W. K., 97 Chambers, N. Y. ... 4

Nickel Platers' Supplies.
- Hanson, Van Winkle & Co., Newark, N. J. 50
- The Zucker & Levett Chemical Co., 540 to 544 West 16th, N. Y. ... 31

Norway Shapes, *Rollers of.*
- Naylor & Co., 99, John, N. Y. ... 44
- Rowland William & Harvey, Frankford, Philadelphia ... 52

Nuts, Bolts, &c., *Makers of.*
- The Allentown Rolling Mills, Allentown. 5
- Wm. H. Haskell Co., Pawtucket, R. I. ... 49
- Lanman Wm. C., Norwich, Conn. ... 12
- New Haven Nut Co., Westville, Conn. ... 50
- Russell, Burdsall & Ward, Port Chester .. 52
- Upson Nut Co., 99 Chambers, N. Y. ... 44

Oil Stones.
- Chase Geo., 107th & Harlem River, N. Y. .39

Oils, Machinery, &c.
- Binghamton Oil Refining Co., Binghamton, N. Y. ... 32

Ox Shoes.
- Livingston Horse Nail Co., 104 Reade, N. Y. ... 14

Packing.
- Chalmers-Spence Co., 419 Eighth, N. Y. ... 9
- N. Y. Belting and Packing Co., 13 and 15 Park Row, N. Y. ... 13

Padlocks.
- Eagle Lock Co., 98 Chambers, N. Y. ... 42
- Nimick & Brittan Mfg. Co., Pittsburgh ... 28
- Smith & Egge Mfg. Co. Bridgeport ... 51
- Tower & Lyon, 96 Chambers, N. Y. ... 42

Paint.
- Cleveland Iron Ore Paint Co., Cleveland. 8

Patent Solicitors.
- Benjamin Geo. H., 234 Broadway, N. Y. . 5
- Howson & Son, Phila. and Washington ... 11
- Roeder & Briesen, 82 and 84 Nassau, N. Y. 3
- Stetson Thos. D., 23 Murray, N. Y. ... 7
- Stocking E. B., Washington, D. C. ... 4

Pens, Steel.
- Miller Bros., Meriden, Conn. ... 13

Perforated Sheet Metal.
- Harrington & King Perforating Co., Chicago, Ill. ... 45

Phosphor Bronze.
- Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia ... 13

Phosphor Tin.
- Naumann F., 479 Broome, N. Y. ... 13

Picks, *Makers of.*
- Pierson & Co., 24 Broadway, N. Y. ... 4

Pig Iron.
- Bellaire Nail Works, Bellaire, O. ... 17
- Brier Hill Iron & Coal Co., Youngstown, O. 44
- Montour Iron and Steel Co., Reading, Pa. 44

Pipe Cutters.
- Pancoast & Maule, Philadelphia ... 46

Pipes, Fittings, &c., *Makers of.*
- McNab & Harlin Mfg. Co., 56 John, N. Y. .49

Pipe, Water and Gas, *Makers of.*
- McNeal A. H., Burlington, N. J. ... 6
- Mellert Foundry & Machine Co., Limited, Reading, Pa. ... 12
- Reading Iron Works, Philadelphia, Pa. ... 6
- Wood R. D. & Co., 400 Chestnut, Phila. ... 4
- Wyckoff A., Elmira, N. Y. ... 13

Plane Irons, *Manufacturers of.*
- Buck Bros., Millbury, Mass. ... 13

Planes, *Manufacturers of.*
- Stanley Rule & Level Co., 29 Chambers, N. Y. ... 9

Planes, Iron.
- Meriden Malleable Iron Co., Meriden, Conn. ... 52

Plated Ware.
- Hall, Elton & Co., 47 E. 13th, N. Y. ... 11
- Simpson, Hall, Miller & Co., Wallingford, Conn. ... 2

Plumbago.
- S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O. ... 17

Plumbers' Materials, *Manufacturers.*
- Everhart Jas. M., Scranton, Pa. ... 52

Power Hammers.
- Beaudry & Cunningham, Boston, Mass. .. 49
- Dienelt & Eisenhardt, Philadelphia, Pa. .50
- Duncan W. P. & Co., Bellefonte, Pa ... 48
- Long & Allstatter Co., Hamilton, O. ... 36
- Stiles & Parker Press Co., Middletown, Conn. ... 52
- Williams, White & Co., Moline, Ill. ... 46

Power Presses and Shears.
- Niagara Stamping and Tool Co., Buffalo, N. Y. ... 35

Power Punches and Shears.
- Long & Allstatter Co., Hamilton, O. ... 36
- Niagara Stamping and Tool Co., Buffalo, N. Y. ... 35

Presses, Dies, &c.
- Bliss E. W., Brooklyn, N. Y. ... 50
- Crosby G. A. & Co., Chicago, Ill. ... 42
- Ferracute Machine Co., Bridgeton, N. J. ... 8
- Stiles & Parker Press Co., Middletown, Conn. ... 52

Presses, Power, *Makers of.*
- Beecher & Peck, New Haven, Conn. ... 41
- Bliss E. W., 167 Plymouth, Brooklyn ... 50
- Merriman A. H., West Meriden, Conn. ... 50
- Peerless Punch & Shear Co., 38 W. Dey, N. Y. ... 51
- Stiles & Parker Press Co., Middletown ... 52

Printers.
- Giles & Co. ... 7

Pulley Block Travelers.
- Yale & Towne Mfg. Co., Stamford, Conn. 11

Pulleys.
- Stearns E. C. & Co., Syracuse, N. Y. ... 52
- Walker Mfg. Co., Cleveland, O. ... 50

Pumps, *Makers of.*
- Douglas W. & B., Middletown, Conn. ... 7
- Silver & Deming Mfg. Co., Salem, O. ... 7

Pumps, Force.
- Field Force Pump Co., Lockport, N. Y. ... 28
- Union Mfg. Co., 96 Chambers, N. Y. ... 7

Punching Machines.
- Niagara Stamping and Tool Co., Buffalo, N. Y. ... 35

Punching and Shearing Presses.
- Buffalo Forge Co., Buffalo, N. Y. ... 14
- Stiles & Parker Press Co., Middletown, Conn. ... 52
- Williams, White & Co., Moline, Ill. ... 46

Rails, Iron and Steel.
- Allentown Rolling Mills, Allentown ... 5
- Cambria Iron Co., Johnstown, Pa. ... 5
- Montour Iron & Steel Co., Danville ... 44
- Pittsburgh Bessemer Steel Co., Pittsburgh ... 44
- Scranton Steel Co., 56 Broadway, N. Y. ... 44

Railway Supplies.
- Fox & Drummond, 68 Wall, N. Y. ... 4

Rakes.
- Schaffer & Co., Dayton, O. ... 36

Razors.
- J. R. Torrey Razor Co., Worcester, Mass. .10

Refrigerator Fastenings.
- Croissant Chas. & Bro., Albany, N. Y. ... 46

Rivets.
- Blake & Johnson, Waterbury, Conn. ... 3
- Grundy & Disosway, 195 Greenwich, N. Y. 12
- Old Colony Rivet Co., Kingston, Mass. ... 2
- Townsend W. P. & Co., Pittsburgh, Pa. ... 49

Rock Breakers.
- Farrel Foundry & Machine Co., Ansonia, Conn. ... 37

Rock Drills.
- Clayton Steam Pump Works, Brooklyn .. 50

Roofing.
- Northrup A. & Co., Pittsburgh, Pa. ... 39
- T. New, 32 John, N. Y. ... 3

Roofing Plates.
- Merchant & Co., Philadelphia, Pa. ... 35

Rules, *Manufacturers of.*
- Stanley Rule & Level Co., 29 Chambers, N. Y. ... 9

Sad Irons.
- Enterprise Mfg. Co., Philadelphia ... 46

Sap Spouts.
- Post C. C., Burlington, Vt. ... 10

Sash Balances.
- Hugunin R. B., Hartford, Conn. ... 32

Sash Chains.
- Morton Thomas, 65 Elizabeth, N. Y. ... 46
- Smith & Egge Mfg. Co., Bridgeport ... 51

Sash Locks.
- Clancy J. R., Syracuse, N. Y. ... 41

Saws, *Makers of.*
- Disston Henry & Sons, Philadelphia ... 40
- E. M. Boynton Saw & File Co., New York City ... 39
- Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y. ... 14

Saws (Barnes').
- Little Chas. E., 59 Fulton, N. Y. ... 10

Saw Sets.
- Farr Asa, 64 College Place, N. Y. ... 37
- Croissant Chas. & Bro., Albany, N. Y. ... 46

Scales, *Manufacturers of.*
- Buffalo Scale Co., Buffalo, N. Y. ... 9
- Chatillon John & Sons, 91 Cliff, N. Y. ... 9
- Riehlé Bros., Philadelphia ... 49

Scrapers, Road.
- Sidney Steel Scraper Co., Sidney, O. ... 34

Screen Corners.
- Porter Mfg. Co., Burlington, Vt. ... 39

Screens, Window.
- Paine, Diehl & Co., Philadelphia, Pa. ... 34

Screw Cases.
- Am. Bolt and Screw Case Co., Dayton, O. 35

Screw Cutting Machinery.
- Wells Bros. & Co., Greenfield, Mass. ... 42
- Wiley & Russell Mfg. Co., Greenfield ... 36

Screw Drivers.
- Chicago Screw Driver W'ks, Chicago, Ill. 14

Screw Plate and Pipe Cutter.
- Jarecki Mfg. Co., Erie, Pa. ... 41

Screws, *Makers of.*
- Billerbeck J., 17th and Venango Sts., Philadelphia ... 13
- Bruce Geo. W., 1 Platt, N. Y. ... 9
- Wm. H. Haskell Co., Pawtucket ... 49
- Miles F. S., 205 Quarry, Philadelphia ... 6

Scythe Stones.
- A. F. Pike Mfg. Co., Pike Station, N. H. ... 17

Shafting, *Makers of.*
- Cresson Geo. V., Philadelphia, Pa. ... 51
- Edison Shafting Mfg. Co., 191 Fulton, N. Y. ... 48
- Peerless Punch & Shear Co., 38 W Dey, N. Y. ... 51
- Sellers Wm. & Co., Philadelphia, and 79 Liberty, N. Y. ... 51

Shears.
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Niagara, " 1, 2, 3 4. *Woodward,* Nos. 1, 2, 3, 4.
Cameron, " 1, 2, 8. *Worthington Duplex,* Nos. 1, 2.
Guild & Garrison, 1, 2, 3, 4, 6.

Also Plunger Pumps and Andrews' Centrif. Pumps.

Miscellaneous. Second-hand.

1 Hydraulic Press, 3 x 5 platen, 10-inch ram.
1 " " " " 13 "
Steam Hammer, Ferris & Miles, 48½-inch cylinder.
Sturtevant Blowers, 2, 3, 4, 6, 7.
Portable Saw Mill, 48-inch saw.
Tanks of various sizes.
Lowe Patent Heater, Coil Heaters.
Hatchway Hoist, Power Attachments.
Baxter Engines, 2, 6 and 10 Horse-Power.
Gas-Steam Portable Engine, Lawson, 1 Horse-Power.

Plans and Estimates furnished for New or Second-hand Plants. Prices reasonable; quality guaranteed.

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One Horizontal 6 x 9, complete; price, $175.
One Horizontal 12 x 18, complete, except fly-wheel and brasses in connecting-rod and side brasses in pedestals; price, $600.
One Horizontal Engine, 12 x 24, box bed-plate, complete, except fly-wheel, connecting-rod and brasses in pedestals; price, $250.
Upright Engine, 24 x 24, box bed-plate, complete, except piston-head, brasses in one of the connecting-rods, brass for valve-rod, fly-wheel, cam strap, rock arm and fly-wheel shaft; price, $550. Address

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Cheap, Job Lot

No. 4 Mesh Iron Cloth.

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WANTED.—Second hand—one set of Boiler Makers' Tools, including Punch, Shear and Rolls. We also want one Lathe to turn and bore Pulley 72 in.

Address SCHERMAN MFG. CO.,
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WANTED.—A position by a man with six years' experience as Traveling Salesman for Hardware and Mill Supplies; would like a situation to travel or clerk in United States or Canada. Address "L. M. B.,"
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WANTED.—Situation by a competent Stenographer and Type Writer; also have had several years' experience as Bookkeeper.

Address "IRON AGE 94,"
Room 6, 36 and 38 Clark St., Chicago.

WANTED.—An active young man with $8000 cash, experienced in Hardware manufacture or trade. Round interest and good pay and profits. Orders on hand for six months ahead.

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1 each, Engine Lathes, 11 in. x 4 and 5 ft.
1 each, " " 13 in. x 5, 6 and 8 ft.
1 Engine Lathe. 14 in. x 5, 6 and 8 ft.
1 " " 16 in. x 6 ft.
1 each, Engine Lathes, 16 in. x 6, 7, 8 and 10 ft.
1 Engine Lathe, 18 in. x 6, 8, 10 and 12 ft.
1 " " 20 in. x 8, 10, 12, 14 and 16 ft.
1 " " 22 in. x 8, 10, 12, 14 and 16 ft.
1 " " 24 in., any length of bed to 26 ft.
1 " " 26 in., " " 26 ft.
1 " " 28 in., " " 46 ft.
1 " " 28 in., " " 28 ft.
1 " " 30 in., " " 28 ft.
1 " " 36 in., " " 29 ft.
1 " " 42 in., " " 28 ft.
1 " " 48 in., " " 29 ft.
1 " " 15 in., x 4, 6 and 8 ft. Rod feed only.
1 each, Turret Lathes, 13 and 14 in. x 5 ft. x 6 ft.
1 Fox Turret Lathe, 16 in. x 6 ft.
1 Fox Lathe, 15 in. x 5 ft. Round Arbor.
1 Fox Lathe, 15 in. x 6 ft. Square Arbor.
1 each, Hand Lathes, 10, 12, 15 and 18 in. swing.
1 Iron Planer, 18 in x 18 in. x 3 ft.
1 each, Iron Planers, 20 in. x 20 in. x 4 and 5 ft.
1 Iron Planer, 24 x 24 x 6 ft.
1 each, Iron Planers, 26 in. x 26 in. x 7 and 10 ft.
1 Iron Planer, 30 x 30 in. x 10 ft.
1 " " 36 in. x 36 in. x 10 ft.
1 each, 16, 20, 22, 23, 25, 28, 30, 34 and 38 in. Upright Drills.
1 each, Nos. 2, 3, 4 and 6 Spindle Gang Drills.
1 each, 8, 10, 12, 15, 18 and 24 in. Shapers.
1 each, Nos. 1, 2 3 and 4 Milling Machines.
1 No. 2 Milling Machine. Lincoln Pattern.
1 New Pattern Milling Machine. Grant & Bogert.
1 each, Nos. 2, 4, 5 Wire Feed Screw Machines.
1 each, Nos. 3 and 7 Spindle Nut Tapper.
1 Boring and Turning Mill, each 50 and 72 in.
1 Gray's Screw Machine, to take all sizes to 1 in.
1 32-in. Gear Cutter.
1 Grant & Bogert Cutter Grinder.

SECOND-HAND.

1 Engine Lathe, 15 in. x 6 ft. Wood & Light.
1 " " 15 in. x 6 ft. Chelsea Machine Co.
1 Engine Lathe, 24 in. x 8 ft. Taper Attachment.
1 Planer, 24 in. x 24 in. x 6 ft.
1 " 20 in. x 20 in. x 5 ft.
1 " 50 in. x 50 in. x 17 ft.
1 Crank Planer.
1 10-in. Shaper.
1 2-Spindle Edging Machine.
2 Lincoln Pattern No. 2 Millers.
1 Bolt Cutter, to take sizes to 1 inch.
1 Second-Hand "Sellers" Miller.
1 " " "Brainard" "
1 " " " Universal Miller, good as New.
1 Plain Upright Drill, 30 in. swing, Wood, Light & Co.
1 " " " 20 in. "

All kinds Machinists' Tools and Supplies.

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THE TANITE CO., GRANT & BOGERT MACHINE TOOL WORKS,
and for the NEW POLISHED SHAFTING.

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One 18 x 30. One 18 x 24.
One 14 x 24. One 14 x 20.
One 14 x 18. One 16 x 24.
One 10 x 24. One 11 x 14.
One 12 x 16. One 8 x 16.
One 14 x 18, 2d-hand. One 12 x 24, 2d-hand.
One Corliss Condensing Beam Engine, 32 x 72. 2d-h.
One 80 H. P. Horizontal Tubular Boiler.

Large stock assorted sizes new and latest improved Engines and Boilers Come and examine our stock. Plans, estimates and specifications furnished for mills and factories, guaranteeing best results; steam engine indication; cards demonstrated for economy, &c. Send for circular.

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Are prepared to receive **PIG, BAR AND SHEET IRON, LUMBER AND ORE,** Blooms, Ingots, Muck-Bar, Car Wheels, Rails, Machinery, Nails, &c. We also arrange to store **Pig Iron** at Furnaces, **Lumber** at Mills or in Yards, **Ore** on Docks or at Mines. Warrants will be issued on all stock received, made transferable by indorsement and deliverable to the holder on demand. These warrants will furnish a convenient medium of transfer and delivery, and serve as collateral to parties wishing advances on their stock. Correspondence solicited.

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Will sell cheap for cash and time payments, or will exchange for real estate or lumber, any part of the following machinery, subject to inspection before purchase

1 Train of Lauth's 24 in. 3-high Rolls.
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300 " WAGON & BUGGY SPRING STEEL.
100 " WIRE CABLE.

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One 50-foot Air Hoist for Blast Furnace, air cylinder 30 inches internal diameter, with necessary sheaves. Will hoist two barrows of stock at once. Apply to

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Pottsville, Pa.

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The Plant, Machinery and Tools of the Champion Scraper Co., Troy, Ohio, consisting of one Cummer Engine, 50 H.-P. One Drop Hammer and Dies. One No. 5 Punch. One No. 2 Punch. Long & Allstatter make, with all other necessary Tools for the manufacture of Scrapers and Post Augers. This property must be sold. The location is the best in Troy. Will be sold very low. Correspondence solicited.

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New first-class Machine Tools at very low prices, combining all the latest and best improvements.

Engine Lathes with 6 and 8 foot beds, 16-inch swing.
18-inch swing, with 8, 10 and 12 foot beds.
23-inch swing, with 12½-foot bed.
26, 27 and 28 inch swing, with 12½-foot beds.
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A Horizontal Engine, 250 H.-P, 26 in. diam. x 42 in. stroke, Goodwin's governor and cut-off, two belt fly-wheels, 14 ft. diam. and 36-in. face, 3 Boilers, Belts, &c.; all complete and in first-class order. Will sell low for *cash* or *exchange* for *Iron* or *Coal*. Also 10 H.-P. Horizontal Engine cheap.

Address EZRA BERTOLET,
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Nos 1½ and 5½ Baker Blowers; Nos. 1½, 2, 5 and 7 Root Blowers; Nos. 3, 4, 6, 7, 9 and 10 Sturtevant Blowers; Nos. 2, 5, 34 and 70 do. Exhausters; No. 8 McKenzie Blower. Boilers, Engines, Machine Tools, &c., bought and sold on commission by

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Three-Spindle Nut Tapper, made by Oliver Bros. & Phillips; good order; cheap.

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Position as Chemist in an Iron or Steel works laboratory by a young man. Have worked on Limestone, Iron Ore, Coal, Slag and Silicon, Sulphur. Phosphorus, Manganese and Carbon in Iron and Steel. Can furnish balance and necessary apparatus for work. Address W. M. GIBSON,
Portsmouth Ohio

Trade Report.

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, March 18, 1885.

Scotch Pig.—The market is a little steadier. We quote makers' brands as follows:

Coltness, alongside, Glasgow			54/6
Langloan,	"	"	54/6
Gartsherrie,	"	"	51/6
Summerlee,	"	"	51/
Carnbroe,	"	"	48/6
Glengarnock,	"	Ardrossan	48/6
Eglinton,	"	"	48/
Dalmellington,	"	"	46/6
Shotts,	"	at Leith	51/

Lighterage from Ardrossan to Glasgow is 1/ ₱ ton.

Cleveland Pig.—The market is unchanged. We continue quotations, f.o.b. shipping ports:

Middlesboro, No. 1 Foundry		38/
"	No. 2 "	36/6
"	No. 3 "	34/6
"	No. 4 Forge	33/

Bessemer Pig—Is a little steadier. W. C. Hematites are quoted 44/ @ 44/6 for mixed lots, Nos. 1, 2 and 3, equal portions, f.o.b. shipping ports.

Manufactured Iron.—The market is a little steadier. We quote at works:

		£	s.	d.	£	s.	d.
Staff. Ord.	Marked Bars	7	10	0	@	.....	
"	Medium "	6	0	0	@	6 10	0
"	Common "	5	10	0	@	5 15	0
Hoops, 20 W. G. and over.							
"	Common Best	6	15	0	@	.....	
"	Medium	6	5	0	@	6 10	0
"	Common	6	0	0	@	6 7	6
Sheets, 20 W. G. and under.							
"	Ordinary Best	7	15	0	@	8 5	0
"	Common	7	5	0	@	7 15	0
Welsh Bars		4	17	6	@	5 2	6

Steel Rails—Are unchanged. We quote £4. 15/, f.o.b. shipping ports.

Old Rails—Are a little steadier. We quote Old D. H's, c.i.f. New York, £3 @ £3. 5/.

Scrap—Is a little firmer. Heavy Wrought is quoted £2. 10/ @ £2. 12/6, c.i.f. New York.

Copper.—The market is not so steady. We quote Best Selected, £50. 15/ @ £51. 15/, and Chili Bars, £46. @ £46. 10/.

Tin—Is a little steadier. Straits Ingots, spot, £78. 5/ @ £78. 15/, and futures, £79 @ £79. 10/.

Tin Plates—Are weaker. We quote:

Tin Plates, 10x14,	1st qual.	Charcoal		19/6 @ 21/6
" "	2d "	"		18/6 @ 19/
" "	1st "	Coke		17/6 @ 18/
" "	2d "	"		18/ @ 18/6

Spelter.—The market is unchanged. We quote Ordinary, at shipping ports, £13. 17/6 @ £14.

Lead.—The market is unchanged. We quote Common English Pig, £10. 12/6 @ £10. 17/6.

Freights.—Steam from Glasgow to New York, 1/6.

Financial.

Office of *The Iron Age*,
WEDNESDAY EVENING, March 18, 1885.

It is gratifying, in a review of the past week, to notice more positive signs of improvement, although dullness in mercantile circles is still a common complaint. In purely speculative circles an unnatural stimulus was imparted early in the week by war rumors from Europe. But reaction followed after a temporary spurt, so that the net result indicates no radical change. Production is still restricted, and manufacturing enterprise receives no adequate encouragement. Apart from these facts, however, the evidence is indisputable that throughout the country, with rare exceptions, there is in progress a larger volume of business, not yet equal to that of last year at the corresponding date, but larger compared with the previous week. In an examination of the returns from clearing houses it is noticed that nine cities now record exchanges in excess of a year ago, including Memphis, Kansas City, Milwaukee and Boston; the Eastern States, as a whole, show an increase, but the Middle, Western and Southern are still behind. Manufacturing cities, Pittsburgh excepted, are all doing better than before for several months. Railroads show gross earnings for the first week in March equal to a net increase of 15 % compared with 1884, showing that as the snow obstruction disappeared the renewal of activity previously noticed since the beginning of December was resumed—that is to say, the transportation business yielded gains instead of losses.

On the Stock Exchange the markets were less active early in the week, and inclined to droop. On Saturday there was some improvement, but the European news, which was of a more pacific character, had little influence. Missouri Pacific was strong on the announcement that the strike of employees had terminated, and that business had fully resumed. Union Pacific and Central Pacific declined in consequence of cuts in the Transcontinental pool. New Jersey Central was influenced unfavorably by a reported attempt to annul the Reading lease. To-day prices were irregular; in most cases lower at the close. Omaha declared a dividend of 1½ % on the preferred stock. Quotations as follows: Pacific Mail, 57¼; Central Pacific, 32½; Reading, 17½; Jersey Central, 36¾; Union Pacific, 43¼; Western Union, 58½; St. Paul, 72¾; Northwestern, 94⅞; Lackawanna, 103⅛; Lake Shore, 63½, and New York Central, 88⅞.

A Washington dispatch speaks of a probable bond call, to mature May 1. United States bonds closed as follows:

	Bid.	Asked.
U. S. 3 per cents	101	101⅛
U. S. 4½s, 1891, coupon	111⅞	112
U. S. 4s, 1907, coupon	122⅛	122⅜
U. S. Currency 6s, 1895	125	—
U. S. Currency 6s, 1896	127	—
U. S. Currency 6s, 1897	129	—
U. S. Currency 6s, 1898	133	—
U. S. Currency 6s, 1899	134	—

The imports of foreign merchandise at this port continue to increase. During the past week they amounted to $8,656,814, of which $2,119,182 was dry goods. The receipts of hemp were unusually large, amounting to 34,187 packages, valued at $608,805; there was also quite a liberal movement in sugar, raw hides and india-rubber. Since January 1 the imports aggregate $80,186,307, compared with $94,240,589 for the corresponding time in 1884. The exports of domestic produce from this port continue of fair proportions, the total for the past week being $6,470,766, compared with $6,107,266 for the same week last year. Since January 1 they aggregate $72,692,861, compared with $64,988,266 for the corresponding period of 1884. According to the Custom House reports, the exports of specie for the week were $581,870, making $7,738,713 since January 1, against $13,162,351 for the same time last year, and the imports of specie amounted to $425,138, making a total of $4,622,096 since January 1, as compared with $1,174,857 in 1884.

The bank return for the week shows a decrease of $292,550 in surplus reserve, which now stands at $47,092,550, against $6,654,925 at the same time last year and $5,770,875 deficiency at the corresponding date in 1883. The loans show a gain this week of $1,437,400. From the foregoing it will be inferred that less money is wanted for commercial purposes. In Chicago the quietness in monetary circles noticed of late continues.

Contrary to recent reports concerning the practicability of checking the issue of silver certificates, the Treasury cannot avoid putting them out. This follows from the necessity of buying silver for coinage. The gold reserve being comparatively low, purchases of bullion are paid for in silver, and certificates are naturally preferred rather than coin. Certificates also get out in making remittances West and South, in the desire to avoid freight expenses in shipping metal.

Statistics of the foreign commerce of New York, so far as they indicate an increasing balance of trade in favor of the United States, possess more than usual significance as bearing upon the silver question. In prospect of little or no foreign demand for specie for at least several months to come, apprehensions of a silver crisis will correspondingly diminish. From the Custom House returns now at hand it appears that the imports at New York for February were only $30,127,428, which is $8,000,000 less than for the same month last year, and far below the importations of any previous February since 1879. The largest previous February imports came in 1882, when, with only $225,462 in specie, the total was nearly $40,500,000. The imports of specie, it is surmised, would have been much larger had capitalists abroad felt assured that they might not be compelled to receive in return, some day or other, $830 for every $1000 invested. The foreign imports for eight months of the fiscal year compare as follows:

	1883.	1884.	1885.
Six mos. ending January 1	$248,987,459	$236,494,331	$214,386,648
January	40,250,143	38,085,320	29,615,123
February	38,946,025	38,391,521	30,127,428
Total, eight months	$328,183,627	$312,971,172	$274,129,199

Turning now to the exports we find that the total for February, so far from showing the gain noticed in previous months, exhibits a material decline, the figures being $23,652,296 in produce and manufactures, against $24,000,000 in February, 1884, while the specie receipts were $2,836,966, as against $4,817,502 in 1884 For eight months the exports, exclusive of specie, are $248,771,770, as compared with $244,924,821 last year, and $260,644,913 in 1883. The balance in favor of the United States January 1 was $147,115,382, to which January added nearly $39,000,000. February will further increase this amount to the extent of about $15,000,000.

The posted rates for bankers' sterling were reduced to $4.83½ for 60-day and $4.86½ for sight. The market is heavy.

In the general market during the past week uneasiness was excited by warlike rumors. The first effect was to stimulate prices under the prospective better demand for grain, produce and metals; but cotton dropped when the war news became most ominous, and as rapidly recovered as advices became more pacific in their tenor. Wheat, which had advanced to 94½¢ ₱ bushel, broke on Saturday 4½¢, and the market is now supposed to be influenced legitimately only by the relations of supply and demand. The tone of the market is generally steady, and the same of provisions. Corn is irregular. Cotton is dull, but steady. Among dry-goods jobbers trade has not been active, but the volume of sales is in excess of that for the previous week. The Fall River mills are considering the expediency of another shut-down. Coffee is steady; sales unimportant. Hides and leather firm and fairly active. For india-rubber there is a light jobbing demand; prices unsettled. Sugars dull and nominal. Ocean freights are improved, largely for flour in sacks.

Metal Market.

Copper.—The failure of Pope, Cole & Co., Baltimore, has had no effect whatever on the market, which is dull, with nothing doing beyond a small jobbing trade. The quotation for Lake Superior remains 11¢ @ 11⅝¢, and for Baltimore it is 10⅝¢ @ 10¼¢. Chili Bars have ranged in the London market as follows: March 12 and 13, £45. 15/; March 14 and 16, £46. 5/; March 17, £46, and this morning, $45. 17/6. Best Selected is down to £51. Messrs. James Lewis & Son, in their monthly review, just to hand, express themselves to the following effect: "The market has been very inanimate during the past month, with but little demand on the part of either smelters, consumers or speculators. The value of Chili Bars has gradually declined £1 @ £1. 5/ ₱ ton—from £48. 2/6 to £47. 2/6 for cash parcels, and £48. 7/6 to £47. 12/6 for three months' prompt, the fall in the latter being more marked than in the former. On the 20th inst. £47 was accepted for a warrant—the lowest price on record. Ingot Copper of various kinds has been pressed on the market and sold very cheap—£51. 10/, less 2½ % discount, accepted for Best Selected, delivered at Birmingham, £51 for American 'Anchor' brand, and £50. 12/6 for Lota Ingots, delivered here. Japanese Cake Copper, of which a considerable quantity has arrived this year, sells at about £47 ₱ ton, and American Slabs at about the parity of Chili Bars, 96 % guaranteed. India Sheets have been sold largely at £55. 10/ ₱ ton." The import from the United States into Liverpool and Swansea during the first two months of the year has been 3328 tons Fine, against 1940 last year, 497 in 1883 and 10 tons in 1882. Manufactures may be nominally quoted: Bottoms, 18¢; Braziers, 17½¢; Sheathing, 16¢, and Bolt Copper, 18¢. We are cabled from London this afternoon that the market is not so steady.

Tin.—Since our last report the market has been run up again in London to £78. 5/, Straits, spot, and stood £79. 2/6, three months, yesterday; this morning the latter quotation had receded to £79, and this afternoon to £78. 5/ @ £78. 15, and futures £79. @ £79. 10/. Our own market has evinced little disposition to follow London very closely, and Spot Tin is not worth over 17½¢ this morning. As per latest mail advices from Singapore, liberal receipts are expected in the Straits Settlements. The shipments from the Straits, March 1 to 15, were 50 tons to America and 600 to England. The consumptive demand on this coast is slack, and dealers and consumers place no confidence in the present manipulated high ruling of Tin. *Tin Plates.*—The shipments on through bills of lading from Liverpool to the West still interfere very much with the dealings at this point, and the market has been inactive, but sustained. We quote at the close, ordinary brands, large lines, ₱ box: Charcoal Bright, $4.90 @ $5.25; do. Ternes, $4.45 @ $4.60; Coke Tin, $4.40 @ $4.50; and do. Ternes, $4.30. Liverpool has been steady; the quotation there to-day is 15/9 @ 17/6 for Charcoal, and 13/9 for Coke Tin. From London we are informed that the market is a little steadier.

Lead.—Some 300 tons Common Domestic sold during the week at $3.70, at which figure the market closes strong, Corroding being worth 3¼¢. St. Louis has been active and steady at 3½¢ for Hard, and $3.55 for Soft. Soft Spanish remains steady in London at £10. 10/. Manufactures are quoted as follows: Lead Pipe, 5¼¢ ₱ lb; Sheet Lead, 6¼¢; Tin-Lined Lead Pipe, 15¢, and Block-Tin Pipe, 40¢, allowing in trade for Old Lead delivered in New York, 3¢ ₱ lb. Shot: Drop, 6¢; Buck, 7¢; Chilled, 7¢. Shot in 5-lb bags, 1¢ ₱ lb extra. From London we learn this afternoon that the market is unchanged. Common English Pig, £10. 12/6 @ £10. 17/6.

Spelter and Zinc.—Common Domestic Spelter has been dull and featureless at $4.25 @ $4.37½, and Silesian at $4.75, nominally. Without being very lively, the Breslau market is reported to show great firmness. In London Silesian has not varied from £13. 17/6. Bertha Refined we quote 8¢. *Sheet Zinc* has been moderately active at $5.15 @ $5.25, American. From London we are cabled that the price of Ordinary at shipping ports is the same.

Antimony.—A quiet trade has been transacting at 9⅞¢ for Hallett, and 10⅜¢ for Cookson. London, as heretofore, quotes the former £39.

Metal Exchange.

The following transactions are reported as having occurred on the floor of the New York Metal Exchange during the past week:

FRIDAY, March 13.
10 tons Tin, spot $0.171
SATURDAY, March 14.
10 tons Tin, April ..... .1735
MONDAY, March 16—Between calls.
10 tons Tin, March ..... .176
10 tons Tin, April ..... .175
10 tons Tin, May ..... .174
TUESDAY, March 16.
100 tons Pig Iron, September $17.00
200 tons Pig Iron, August 17.00
10 tons Tin, June 0.1735

From the annual report of the secretary, Mr. Edward J. Shriver, to the president and Board of Managers, it appears that the membership of the Exchange has diminished from 351 to 342 by striking off nine names for non-payment of dues. Twenty-one transfers have been made and two deaths reported. The report then refers to matters relating to the conduct of the Exchange. In speaking of general trade matters, Mr. Shriver reports that the sales of Tin which were reported between March 25, 1884, and March 14, 1885, were 2660 tons, and those of Pig Iron 4900 tons, while dealings in the other metals were so trifling as hardly to be worth compiling.

Trade Report.

New York Iron Market.

American Pig.—There has been no change practically in the tone of the market. Buying continues on a moderate scale for early requirements, and there is no pressure, on the other hand, to sell. Prices do not show the slightest indication of an improvement, and there is no apparent tendency toward weakness. There is some business pending in Southern Pig Iron which may be closed at an early day. We continue to quote standard brands of Lehigh and North River Irons, tidewater delivery, as follows: No. 1 X Foundry, $18 @ $19; No. 2 X Foundry, $17 @ $18; Gray Forge, $16 @ $17. The outside figure is asked for special brands. Outside brands sell for 50¢ @ $1 less than our quotations.

Scotch Pig.—The arrivals during the week have been heavier. The bulk was already contracted for, and only a small quantity has gone into store. The business continues light. Nominal quotations for 5 and 10 ton lots are as follows: Coltness, $21.50 to arrive; Gartsherrie, $21 to arrive, $22 from yard; Shotts, $21.50 to arrive, $22 from yard; Langloan, $21.50 to arrive, $22 from yard; Carnbroe and Glengarnock, $19.50 to arrive, and $20.50 from yard; Summerlee, $20.50 to arrive; Dalmellington, $19 @ $19.25 to arrive; Eglinton, $18.50 @ $19 to arrive; Clyde, $19 @ $19.25 to arrive. On large lots concessions are made.

Bessemer Pig and Spiegeleisen.—The week has been a very dull one, no transactions of importance having been closed either in Foreign Bessemer Pig or in Spiegeleisen. Domestic Bessemer is selling at $16 @ $18, delivered at mill, according to quality. Spiegeleisen is nominally quoted at $25.50 for 20 %.

Bar Iron.—Inquiries are reported to be somewhat more numerous, but orders are placed with hesitation and comparatively little has been done. The lines between the different grades are not so sharply drawn as they should be, and some Bar Iron which is not strictly first-class is being sold as Best Refined at concessions. The following range represents quotations: Common Iron at mill, 1.4¢ @ 1.6¢; from store, 1.6¢ @ 1.9¢; Best Refined at mill, 1.65¢ @ 1.9¢; from store, 1.85¢ @ 2¢.

Structural and Shaped Iron.—While it is known that considerable work is being estimated on, current business is small. The Beam association is understood to have put its veto on a number of practices which have hitherto made the quoted rate of 3¢ nominal in a number of cases. Angles continue low in large lots. Quotations for small lots continue to be, nominally, as follows: Angles, from store, 2.2¢ @ 2.6¢; Tees, from store, 2.8¢ @ 3¢. Beams and Channels are 3¢ on dock for all orders. Foreign Beams are quoted 2.6¢ for Belgian, and 2.8¢ for German.

Plates.—Business continues very quiet. We understand that the low figures named recently for Tank Iron were made under special circumstances, and that they cannot be obtained now. Usual prices of Iron Plates are as follows: Common or Tank, 2.1¢ @ 2.15¢; Refined, 2½¢; Shell, 2½¢ @ 2¾¢; Flange, 3½¢; Extra Flange, 4¢ @ 4¼¢; For small lots of Steel Plates the quotations are as follows: Ship, 2¾¢ @ 3¢ at mill; Tank, 3¢ @ 3½¢ on dock; Boiler, 3½¢ @ 3¾¢ for Shell, 4¢ @ 4½¢ for Flange, and 4¾¢ @ 5½¢ for Extra Flange and Fire Box.

Sheet Iron.—There is a little more inquiry, without, however, effecting any change in the current low prices. We quote prices of Sheet Iron in our list of New York Wholesale Metal Prices.

Merchant Steel.—Business continues quiet. Nominal quotations are as follows: American Tool Steel, 7¼¢ @ 10¢; Tool Steel of special grades and finer qualities, 12¢ @ 20¢; Crucible Machinery, 4 5¢ @ 6¢; Spring and Tire, 2¾¢ @ 3¼¢; Open-Hearth Machinery, 3¢ @ 3¼¢, and Bessemer Machinery, 2¾¢ @ 3¢; English Tool, 13½¢ @ 15½¢.

Steel Rails.—During the week about 35,000 tons of Steel Rails have been placed by Pennsylvania mills, the principal order being one of 20,000 tons for the Louisville and Nashville Railroad, for delivery in blocks of about 2000 tons per month during the current and part of the next year at points along the line. There are a good many contradictory reports concerning the terms at which the contract was placed. A part may be shipped via New York and Brunswick, Ga., to Chattanooga. The price is variously stated, but there is every reason to believe that the net figure at the mill is low. It is certain that $26 has been shaded this week. There is considerable business pending, a number of orders of 10,000 tons and upward being in the market. In the case of every contract there is a very sharp competition, and the prices made are dependent largely upon the point of delivery. We quote nominally $26 @ $27 at mill.

Steel Blooms and Billets.—Some of the mills are doing a fair business. For Billets the quotations range from $30 to $38 at mill, according to size and quality, the latter depending upon the carbon contents chiefly.

Steel Wire Rods.—There has been more inquiry and there is some business pending. We quote, nominally, $42.

Old Rails.—The only transaction we hear of is a lot of 300 tons of American Rails for delivery at a point in Connecticut. Buyers' and sellers' views are too far apart to admit of much business. We quote, nominally, $17 @ $17.50. Large quantities of Old Rails are offered for delivery after the opening of navigation, the offerings coming from the South and the East. In some instances the sellers of Steel Rails have undertaken to receive and dispose of the Old Rails taken up, in part payment for the New Rails. The low price of the latter may serve as an inducement to replace worn Iron track, since the money received for the Old Rails will go far toward paying for the new ones. Old Street Rails are quoted at $20. There has been some business in them recently.

Old Wheels.—We are reported a sale of 150 tons of Old Car Wheels, delivered at buyers' works, at $16.

Scrap.—Under special circumstances a lot of a few hundred tons of Extra No. 1 has been placed. The market is firmly held, but buyers appear to show little disposition to meet the advanced views of sellers.

The Scranton Steel Company, Walter Scranton, vice-president, have removed their office to more commodious quarters at 47 Broadway.

G. W. Wright, Old Rails and Scrap, formerly at 70 Wall street, has removed to 68 Wall street, Room 2.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, March 17, 1885.

Pig Iron.—The market remains in much the same condition as reported a week ago, both as regards price and demand. Buyers are beginning to be a little more discriminating in their choice of brands, however, so that the more favorite makes are steady to firm, while medium brands and those of uncertain character are a shade easier. The supply of Pig Iron seems to be equal to all requirements, and there are no indications of scarcity or of a desire on the part of consumers to increase their lines beyond their usual requirements. On the other hand, sellers are anxious to avoid accumulations, and to that end watch their trade with unusual care. The volume of business is increasing somewhat, but, as shown by the condition of furnaces in last week's *Iron Age*, production is increasing also, so that supply is at least in equal proportion to demand. Under these conditions there is nothing upon which to base anticipations of better prices, and for the present, at all events, sellers are satisfied to maintain current quotations. Choice brands of Foundry Iron are closer sold than other descriptions, and whatever firmness there is in the market may be found in this direction. No. 2 Foundry and below that are somewhat irregular, with a degree of hesitancy among large consumers that is not altogether satisfactory, implying, as it does, a lack of confidence, even at the low figures now prevailing. There is no expectation of materially lower figures, of course, but the necessity for economy is such that, so long as there is a chance of saving a few cents per ton, orders are held back or cut down to the smallest limits possible. This feeling is encouraged by the continued offerings of Alabama Irons at low figures, and by the liberal supply of the grades named from furnaces in the immediate vicinity. The ordinary quotations are $16, delivered, for Gray Forge, and $17 for No. 2 Foundry, and, while some have been able to maintain these quotations for standard brands, others have yielded a trifle in buyers' favor, and the tendency in this direction appears to be more general than it was some days ago. Alabama and Tennessee Irons are offered at $15, $16 and $17, but no sales of importance have been made during the past week, so far as known. Buyers could be found at concessions of probably 50¢ ℔ ton, but the figures named appear to be firm quotations, although $15 was shaded on a 5000-ton lot some 10 or 15 days ago. Taking the market as a whole, therefore, there is not much encouragement to those who have been looking for higher prices, but, in view of the increase in production and the comparative steadiness in prices, the opinion that the volume of business is widening appears to be well founded.

Foreign Iron.—The advance in freights, in consequence of the unsettled condition of affairs in Europe, makes it difficult to quote definite prices on either Bessemer or Speigel. An offer of $25.50 was made for 1000 tons of 20 % Speigel, but sellers hesitate to quote anything below $26.50 unless with some guarantee as to freights.

Muck Bars.—There is a fair demand for small lots at unchanged prices, say, $26.50 @ $27.50, delivered, according to quality.

Blooms.—There is no change in this department, and prices remain as before, say, Steel Blooms at about $31 @ $32 for Nail Plate and $35 @ $36 for Plate and Sheet Blooms. Other descriptions are dull, and for the best makes quoted as follows: Charcoal Blooms at $50 @ $52; Run-out Anthracite, $43 @ $44; Scrap Blooms, $35 @ $36; Northern Ore Blooms, $35.

Bar Iron.—The demand is improving and the mills are gradually filling up with work. Competition for business has prevented improvement in prices so far, and manufacturers are not very sanguine of any change for the better in the immediate future. Orders are increasing in size, nevertheless, and if business continues fair for a few weeks longer there will doubtless be a gradual stiffening up. In the meantime buyers find no difficulty in placing orders at as low figures as before, which are so various that newspaper quotations can be little more than nominal, unless quantity, quality and specification of sizes are given with each quotation. The usual rates are about 1.8¢ for strictly Best Refined Iron, 1.6¢ @ 1.7¢ for a good Medium quality and 1.5¢ for Common. Skelp Iron is in better demand, and offered at 1.8¢, delivered.

Plate and Tank Iron.—There has been a very fair demand during the week, and, while prices are no higher, the feeling is firmer and concessions less frequent than they were some time ago. Large orders are still scarce, but the leading mills have managed to run full and also secure something in addition for forward delivery. On the whole, therefore, the tendency is toward improvement, but there is no quotable change in prices, which remain as before: Ordinary Plate, 2¢; Tank, 2¢ @ 2.1¢; Shell, 2.5¢; Flange, 3.5¢; Fire Box, 4.25¢; Steel Plates, Flange, 3.5¢ @ 3.75¢; Fire Box, 4.25¢.

Structural Iron.—There have been no transactions of special importance, but the demand for small lots has been at least equal to the week's production, so that manufacturers feel somewhat encouraged. A large amount of business is in sight, but as usual there may be some delay in giving it out: but in the meantime the leading mills are comfortably provided with work for some little time to come. There is considerable anxiety for business, nevertheless, and sharp cutting is reported on desirable orders, although quotations are nominally unchanged—say 2¢ @ 2.1¢ for Angles, 2.1¢ @ 2.15¢ for Bridge Plate, 2.5¢ for Tees, and 3¢ for Beams and Channels.

Sheet Iron.—The demand is improving and manufacturers feel considerably encouraged by the numerous inquiries and the amount of orders recently entered. Prices are unchanged, but the feeling is firmer and small lots are quoted about as follows:

Best Refined, Nos. 26, 27 and 28	3¼¢
Best Refined, Nos. 18 to 25	3¼¢
Common, ¼¢ less than the above.	
Best Bloom Sheets, Nos. 26 to 28	5 ¢
Best Bloom Sheets, Nos. 22 to 25	4½¢
Best Bloom Sheets, Nos. 16 to 21	4 ¢
Blue Annealed	2.4¢
Best Bloom, Galvanized, discount	60 %
Second quality, discount	62½ %
Common, discount	65 %

Wrought-Iron Pipe.—A good many inquiries have been made during the week, and the number of orders placed is said to be somewhat larger than for some weeks previous. For ordinary-sized lots discounts are about as follows: Butt-Welded Black Pipe, 45 @ 47½ %; Lap-Welded Black, 65 @ 67½ %; Butt-Welded Galvanized, 35 @ 37½ %; Lap-Welded Galvanized, 45 @ 47½ %; Boiler Tubes, 57½ @ 60 %.

Steel Rails.—The week has been somewhat quieter than usual, but the mills have plenty of work on hand for the present, so that there are no complaints of dullness. The Louisville and Nashville order for 20,000 tons was placed last week with the Bethlehem Iron Company; price supposed to be $27 at mill. There are other important orders still on the market, but manufacturers are not inclined to meet the terms offered, $27.50 @ $28 at mill being the usual asking rate, and, unless for a very desirable order, concessions are not likely to be granted. The demand for small lots and for light sections is well sustained, and the chances appear to be favorable to manufacturers—for the present, at all events.

Old Rails.—Business is still held in abeyance, owing to the difference in the views of buyers and sellers. Quotations remain at $18 @ $18.50 asked for Philadelphia deliveries, with $17 @ $17.50 bid. For deliveries in the interior $18.50 @ $19 is asked, with sales of small lots at $18.50.

Old Material.—There appears to be a little more doing, but the market is far from active. Prices are quoted somewhat more firmly, especially select lots of No. 1 Wrought Scrap. The range of prices is about as follows: No. 1 Wrought Scrap, $17.50 @ $18; No. 2 do., $12 @ $13; Horse Shoes, $22 @ $22.50; Turnings, $13 @ $14; Old Car Wheels, $15 @ $16; Old Steel Rails, $15.50 @ $16; Fish Plates, $22; Cast Scrap, $13.50 @ $14; do. Turnings, $9.50 @ $10.

Nails.—There is no change to note as regards either the demand or price of Iron Nails, but there appears to be a slight falling off in the demand for Steel Nails. The following may be quoted: $2.30 for Iron and $2.40 for Steel Nails.

Pittsburgh.

Office of *The Iron Age*, 77 Fourth Avenue, PITTSBURGH, PA., March 17, 1885.

Careful investigation the past week fails to show any substantial improvement in the general Iron trade. There has been more inquiry, and we are informed that some pretty good-sized orders are on the market, but competition is strong and prices are being shaved so close that whoever gets these orders will not have much more money when at the end than at the beginning. There is more complaint in regard to unremunerative prices than want of business, although, of course, the latter is a natural result of the former.

Some very sensational and foolish specials have been sent from here within the past few weeks in regard to the spread of socialism in Pittsburgh. A number of these sensational dispatches have appeared recently in some of the New York papers, and the impression appears to prevail that Pittsburgh is the headquarters for the socialists. No doubt there are some of these cranks here as elsewhere, but there is no foundation for the reports in question, and the authors thereof must have been hard up for material for "specials" when they sent out these dispatches. This is no place for socialism, and statements sent out of the character in question are calculated to do Pittsburgh harm.

The Monongahela River Coal miners are still out on a strike, demanding 3¢ ℔ bushel. The operators say they cannot in the present condition of the Coal business afford to pay more than 2½¢, which has been the price all winter. It is thought by some well-informed and observant outsiders that the miners will carry the day, although the operators are very stiff at present, and say they will not accede to the demands of the strikers. As between the Iron manufacturers and Ironworkers all is quiet at present, but the result of the conference on June 1, when the wage scale for the ensuing year is to be adjusted, is looked forward to with considerable interest. It is very generally conceded that there will be a reduction, but how much of a reduction the Amalgamated Association will agree to is one of those things it is impossible at present to foretell. Mill owners say that it is absolutely necessary to have a sharp reduction in the cost of their skilled labor in order to meet competition from other points where the cost is much less.

Ore.—So far as we can learn, consumers are still refusing to buy beyond their immediate wants. As the course of Pig Iron still appears downward, furnacemen say they must have a further reduction in the cost of Ores, and the indications are that they will be successful, in view of the small percentage of the furnaces in blast.

Pig Iron.—There has been no important change in the situation during the week just closed; so far as the volume of business is concerned, it is increasing somewhat, but prices do not improve. It is claimed that there are some 40,000 tons of hypothecated Iron stored away in the different storage yards, and, while some of this is being held for a better market, a good deal of it has been placed in the hands of brokers, with orders to sell at the first opportunity and at the best price obtainable. One broker reports having a lot of 1200 tons of Mill Iron of the character in question, which he is offering at $13.50, cash, in storage yard, which would be equal to about $14, cash, delivered at mill. Our city furnaces are still asking $15.40 @ $15.50, cash, for their No. 1 Forge, but it is claimed that other Irons equally as good can be had from 25¢ to 50¢ ℔ ton less. Quotations may be fairly given as follows:

Gray Forge, Neutral	$15.25 @ $15.75,	4 mos.
All-Ore Forge	16.50 @ 17.00,	4 "
White and Mottled	13.50 @ 14.00,	4 "
No. 1 Foundry	17.50 @ 18.00,	4 "
No. 2 Foundry	16.00 @ 16.50,	4 "
Cold-Blast Charcoal	25.00 @ 27.00,	4 "
Bessemer Iron	17.50 @ 18.00,	4 "

We are reported sales of Neutral Forge at $15.10, cash, to $15.50, four months; All-Ore Forge, $16.50, four months; Cold-Blast Charcoal at $26.75, cash, and small lots of Bessemer Iron at $18, four months.

Muck Bar.—No sales reported. We hear of offers to sell Good, Strong Neutral at $27, cash. There have been but very few sales reported all winter.

Manufactured Iron.—There has been no change in the situation during the past week; some manufacturers report an increased inquiry, but all agree that there is no improvement in price. Orders will no doubt be coming forward more freely within the next few weeks, but the outlook for an improvement in price is not very encouraging. It is doubtful whether there is business enough at present to employ much more than one-half of our capacity; few of the mills are running full, some are running single turn, while others are standing idle.

Nails.—Makers of Iron Nails continue to report trade dull for the season, while the Steel-Nail manufacturers claim to have about all they can do. Prices remain unchanged at $2.25, 60 days, 2 % off for cash, with a rebate of 10¢ ℔ keg on car lots and upward. The regular monthly meeting of the Western Nail Association took place on last Wednesday, but there was nothing done except regular routine business. A special meeting takes place to-morrow week.

Wrought-Iron Pipe.—The Pipe trade continues light for the season, and no improvement can be expected until we have milder weather, so that outdoor work can be resumed. We may be mistaken, but the indications are that the demand will continue of a hand-to-mouth character until there is some prospect of an advance in price. Discounts remain about as last quoted, as follows: On Black Butt-Welded Pipe, 47½ % @ 50 %; Galvanized do., 35 %; on Black Lap-Welded Pipe, 65 % @ 67½ %; on Galvanized do., 47½ % @ 50 %. For Pipe cut to special lengths or Selected Pipe, discount 5 % less than rates above quoted. Discount on Boiler Tubes, 60 %; 2-inch Oil-well Tubing, 10¢ ℔ foot, net; 5½-inch Oil-well Casing, 37¢ @ 38¢ ℔ foot, net

Steel.—There is still considerable complaint in regard to the Merchant Steel trade, both in regard to demand and prices. For railroad purposes the demand is very light. Best brands Refined Cast Steel, 9¼¢; do. Crucible Machinery, 4¼¢; Open-hearth and Bessemer do., 3¢. Steel Nail Slabs—for which there has been a very fair demand of late—$30 @ $30.50 ℔ ton on cars at works.

Steel Rails.—There appears to be no improvment in demand, and in the absence of sales we continue to quote Heavy Sections at $27 ℔ ton, cash, free on cars at works. It is hoped that there will be an improved demand later on, but the outlook at present is not promising.

Old Rails.—Old Iron Rails are still quoted at $19.50 @ $20 for near delivery; we are reported sales of 2500 tons for March and April delivery at $19.50. Owing to the protracted cold weather, but very few have been taken up since last fall, which accounts for their scarcity. Old Steel Rails for immediate delivery also in scant supply, and quoted steady at $16 @ $17 ℔ ton, according to length.

Crop Ends.—New Steel Rail Ends are still quoted at $18.50, and new Steel Bloom Ends $18.

Railway Track Supplies.—The demand for everything in this line continues light, with but little prospect of any immediate improvement. Prices nominally unchanged: Spikes, 2¢, 30 days, delivered; Splice Bars, 1.65¢ @ 1.75¢; Track Bolts, 2.35¢ @ 2.45¢ with Square and 2 5¢ @ 2.6¢ with Hexagon Nuts.

Scrap.—No. 1 Wrought Scrap is still quoted at $16 @ $17 ℔ net ton; Old Car Axles, $24 @ $25; Wrought Turnings, $13 @ $14; Cast Borings, $11 @ $12 ℔ ton, gross; the last sale of Old Car Wheels reported was at $16, gross ton, and this appears to be regarded as an outside price.

Coke.—Blast-Furnace Coke remains unchanged at $1.10 ℔ ton on cars at ovens.

Window Glass.—The demand continues light, but an improvement is looked for later on in the season. No change in prices.

Chicago.

Office of *The Iron Age*, 36 and 38 Clark St., Cor. Lake St., CHICAGO, March 16, 1885.

Hardware.—The demand for Hardware during the past week has been steady and stronger than the week preceding, though the promising condition of the weather of several weeks ago has not held out. The market feels every change that occurs, and jumping from warm sunshine into snow storms, and *vice versa*, is certainly having a detrimental effect upon trade in general. Buyers have not sufficient confidence to place orders for goods that are not in immediate demand, and confine themselves largely to keeping their stock in a well-assorted condition. As the month advances, however, there is some increase in spring goods, such as Rakes, Hoes, Forks, Shovels, &c., but the demand reminds one more of sample orders than an established business. Then, too, there is considerable complaint about cutting of prices on various lines, which becomes more prevalent as the season advances. Most of these complaints are laid at the doors of Eastern houses. Among the reasons assigned have been the slowness of collections and the necessity of realizing money on stocks on hand. In Western trade the money market is somewhat easier and collections are gradually improving. In other respects the trade is regarded as in a sound and healthy condition, with every reason to believe that there will be no serious decline in prices or falling off in demand during the summer business.

Barb Wire.—The market is precisely in the same position in which it was reported last week. Instead of complaining of the lack of orders, jobbers are now complaining that they cannot get sufficient stock of Two-Point Wire to meet the demand. Under the license granted by the Washburn & Moen Company to Barb-Wire makers, the amount of Two-Point Wire is limited to about one-third the product, which makes the supply of this Wire considerably less than that of Four-Point, and for unaccountable reasons the demand has been so largely for this class of Wire that jobbers are compelled to restrict their sales to lowest possible quantities. Jobbers in this market have instructed their sales agents not to sell, under any conditions, carloads of Two-Point Wire, except to be delivered at the option of the jobber. Prices are held firmly, and jobbers continue to quote Four-Point, Painted, 3⅞¢, and Two-Point, Painted, and Four-Point Hog Wire at 4⅛¢, and Two-Point Hog Wire at 4⅜¢, with 1¢ additional added for Galvanized. Carload lots are quoted ⅛¢ off these prices.

Nails.—Nothing of importance has been developed during the past week. Orders continue to be numerous, but, if anything, in less quantities than during the latter part of February and the early part of March. Most of the heavy buyers have placed orders that will be necessary for the next month, and those that have not are buying in carload lots, feeling that the market is pretty well settled at present prices. The demand is about equally divided between Iron and Steel Nails, the former being quoted at $2.25, 2 % off, 60 days, in carload lots, and $2.30 in smaller lots. Steel Nails are held at 5¢ additional ℔ keg in this market; Manufacturers in Wheeling and Pittsburgh have been somewhat divided on the question of making both Iron and Steel Nails at the same price. Should this occur, it is possible that the demand for Steel Nails will be greater than for Iron Nails at the same price, and may lead to an advance in the price of Steel Nail Plate, which is now being considered by manufacturers. The Nail market thus far is steady, and prices firmly supported by jobbers and mills throughout

the West, and unless some points not now known should spring up there is no likelihood of any deviation from present prices.

American Pig Iron.—An apathy has prevailed in the Pig-Iron market recently which appears to be inexplicable. A renewal of the hesitating and experimental spirit has sprung up among buyers, and has changed the custom of contracting for periods of from one to six months or more into taking carload lots as necessity requires. This system enlarges the number of new orders, but does not increase the tonnage, and at the same time gives an apparent activity to trade. Considering the market in the most favorable aspect, there is no denying the fact that a steady accumulation of stock is being felt which gives to the buyer a slight advantage. It is not probable, however, that this advantage will be beneficial financially, unless it be obtained on contracts for large blocks ranging from 3000 to 5000 tons. The present demand, and in the shape it comes on the market, is no inducement to furnacemen to break the prices, which have been very steady on Lake Superior Charcoal and Coke Irons for the past three months. A point to be met sooner or later, which has been brought about by competition with Southern Irons, is the introduction of a brand of Iron made from a mixture that contains a relative strength, and which can, by improved features of production, be placed on the market at less figures than now prevail on standard brands. Quotations on Lake Superior Irons, Nos. 1 and 2, continue to be made at $20.50, four months, in carload lots, with Nos. 3, 4 and 5 in very light demand at about $21.50 @ $22.50. Lake Superior Coke Irons, Cinder Mixed and Ohio Standard Black Band are in very light request, and quotations only nominal at from $20 to $21. Southern Irons are selling rather slowly, but cannot be noted as firm. While quotations on No 1 continue to be $18 @ $18.50, No. 2 is quoted at $17, four months, with indications that lower prices have been accepted, and, if it were not possible for makers of this class of Iron to obtain better figures in other markets, there would be undoubtedly a much greater supply to be disposed of here, which would materially weaken the market. Those Southern furnaces which have been noted as having advanced their price are among the few who have been fortunate enough to sell all that they care to dispose of for the next three months. There are makers of similar brands who would be glad to accept quoted prices, and it is stated that $16, cash, would not be refused by some who have on hand larger stocks than they care to carry. The encouraging and discouraging features of the market during the past week bear about equal weight. Southern Mill Irons are quoted at $14.50, which is only nominal, as no sales of importance have occurred.

Merchant Steel.—The Steel market has been somewhat brighter during the past week. The demand has been heavier for Tool and Plow Steels, and prices, if anything, are firmer. Sales agents do not anticipate getting higher figures, but they claim they have sufficient reasons that those announced will be well supported, and when trade is well under way they will be able to realize better profits by coming closer to quotations, as follows for Best Refined grades from store:

	Per pound.		
Best Refined Cast Tool Steel	8¼	@	9¼¢
Crucible Cast Machinery Steel	5½	@	6 ¢
Open-Hearth Machinery	3¼	@	3½¢
Bessemer Machinery	2¾	@	3 ¢
Open-Hearth Spring Steel	3	@	3¼¢
Toe-Calk Steel	3¼	@	3½¢
Fire-Box and Boiler Steel	4¾	@	5 ¢
Sled Shoe Steel, plain	2.35	@	2.4¢
" " curved	2.5	@	2.6¢
Syndicate Steel	6	@	6¾¢

Steel Rails.—In the absence of demand for Steel Rails, we continue to quote $29 @ $30 at Western mills.

Old Rails.—There seems to be more buoyancy in the Old-Rail market than in any other branch of the Iron trade. It is said that stock offered is picked up immediately, and recent sales have been made at $17.50 @ $17.75, for Eastern shipment. Inquiries are on the market for several thousand tons, but holders are not anxious to sell at these figures. They continue to ask $18.50 @ $19, which is no doubt a trifle above what they expect to realize. Steel Rails are quoted at about $15; demand very light.

Bar Iron.—The Bar-Iron market for the week has been very fair. Orders, though small, are numerous, and placed without much hesitancy at 1.8¢ rates from store for Best Refined New Puddled Iron. The demand for Common Iron is also reported very fair, and quoted at 1.7¢ from store. Sales agents are contemplating higher prices for Bar Iron, but have not as yet felt at liberty to make any movement in that direction. It is, however, definitely settled that with an increased demand it is probable it will be necessary to advance the price in order to obtain more remunerative figures to cover the expense in handling to small trade.

Galvanized Iron.—It is yet too early for this branch of Iron to command much attention, though there are agents of manufacturers drifting from point to point who have been offering Iron at something less than prices which have been made heretofore. Jobbers are not disposed to place orders at present, and make the following quotations from store as their retail price: Juniata, discount, 60 %; Charcoal, 60 and 5 %; Refined, 60 and 10 %.

Old Wheels.—Old Wheels are reported as being very plenty, and prices quoted by holders range from $15 to $15.50 ⅌ ton. It is altogether probable that the highest point that could be obtained would be $14.50, and from indications it is possible that good round lots could be secured at this figure.

Scrap Iron.—We renew our quotations on No. 1 Mill Scrap, $14.50, as rolling-mill price; No. 2, $9.50, and Selected Forge, $18.

Chattanooga.

Office of *The Iron Age*, Carter and Ninth Sts., CHATTANOOGA, March 16, 1885.

Very little worthy of mention has occurred during the past week. Farming operations are now in full blast. Most of the Southern furnaces and machine shops are running full, with sufficient orders to carry them well into the summer months. The lumber interest has received a wonderful impetus during the last two or three years, and quite recently several large factories have been erected for the purpose of putting the rough lumber into more marketable shape. Correspondence from the Eastern manufacturers and their agents is on the increase. While it is true that there has been and still is a demand for Pig Iron made in the Southern district that is considered off grade, yet the improvement in this particular has been quite marked. There is certainly no reason why Pig Iron cannot be made throughout this district fully equal in quality to the standard makes of any of the Pennsylvania furnaces. There probably does not exist anywhere a locality where a greater variety of Ores are found than in Tennessee, Georgia and Alabama, and almost all the deposits are convenient to railroad transportation and at a reasonable cost. The same may be said of the Coal measures. The trouble has been that furnace owners have paid too little attention to what goes in at the tunnel-head. As a general thing the plants are of the best, so far as machinery, equipment and general erection and convenience are concerned, but when it comes to the stack the most convenient Ore bank is opened; Coke is bought from anybody, and in it goes regardless of the output, which is placed on the market and sold for the best figure it will bring. This slipshod system has given occasion for much that has been said about the quality of Southern Irons. A better system is taking its place, however, and there will soon be no cause of complaint in this regard.

Pig Iron.—There has been quite an increased demand for Pig during the past week. The West having been so long a market for Southern Irons, there is but little notice taken of large sales to Western points, which are a matter of almost every-day occurrence, but Eastern markets are attracting considerable attention, and as Southern Irons come more and more into use in those markets the foundries are beginning to take them in larger quantities. The cheapest grades are found to be entirely available for Light Castings, Water-Pipe, &c. Prices remain the same. Sales of large lots are matters of negotiation, and are as a general thing on private terms. In carload lots and for small round lots we quote No. 1 Foundry at $14 @ $14.50; No. 2 Foundry, $13 @ $13.50, and Nos. 3 and 4 or Gray Forge about $1 less. Best brands of Charcoal Iron are firm at $22.50 @ $24 for No. 1 Foundry and Car-Wheel Iron.

Coal and Coke.—There has been considerable improvement in the quality of furnace Coke manufactured in this district. The mine owners are paying more attention to the quality than formerly, and the result is that a better article is being furnished. There has been room for improvement, and, judging from what is being done at the mines, a much better article will be made hereafter. The price ranges from $2.50 to $3 at the furnace. Manufactured Coal we quote at $1.25 @ $2 at the works.

Hardware.—This trade still keeps up well, with the usual demand for House Trimmings and Farming Implements. The demand for Nails and Barb Wire is good and prices are firm.

Railroad Fastenings—Still continue in good demand and prices remain unchanged.

Ores.—There has been a disposition on the part of some of the furnaces to use a greater variety of Ores than they have been doing. The consequence is that a number of new openings have been made which are likely to prove favorable to the quality of the Iron.

Cincinnati.

MARCH 16, 1885.—*Pig Iron.*—The market continues fairly active in a small way, without any improvement in prices. The following quotations are for delivery on cars here on four months' time, or 50¢ less ⅌ ton for cash. Deliveries can be made from furnaces less the freight to Cincinnati:

CHARCOAL FOUNDRY.		
Hanging Rock, No. 1	$21.00 @	$21.50
Hanging Rock, No. 2	19.50 @	20.50
Alabama and Tennessee, No. 1	18.75 @	19.00
Alabama and Tennessee, No. 2	16.50 @	17.00
COKE FOUNDRY.		
Ohio and West Pennsylvania, No. 1	18.00 @	18.50
Ohio and West Pennsylvania, No. 2	17.00 @	17.25
Virginia, Tennessee and Alabama, No. 1	16.00 @	17.00
Virginia, Tennessee and Alabama, No. 2	15.50 @	15.75
SILVER-GRAY SOFTENERS.		
Hanging Rock (Jackson County), No. 1	18.00 @	.....
Hanging Rock (Jackson County), No. B 1	17.25 @	.....
Hanging Rock (Jackson County), No. 2	16.50 @	.....
Hanging Rock (Jackson County), No. 3	16.00 @	.....
Others, No. 1	15.75 @	.....
Others, No. 2	15.00 @	.....
FORGE.		
Charcoal	17.00 @	20.00
Coke	14.50 @	16.00
Stonecoal	14.00 @	15.00

CAR-WHEEL.		
Hanging Rock Charcoal, Cold Blast	25.00 @	27.00
Hanging Rock Charc'l, Warm Blast	20.00 @	21.00
Tennessee and Alabama Charcoal, Warm Blast	24.50 @	25.00

No sales of Scrap reported.

St. Louis.

A correspondent favors us with the following report of trade matters in St. Louis:

There are so few changes in prices, and these so moderate, that there is a wholesome lack of excitement, with a steadily improving demand. The Clapp-Griffiths process is exciting much interest, and reports concerning it are closely examined.

Hardware.—This is one of the most developed of St Louis's commercial interests, and many large companies make this city a distributing center. The trade is satisfactory in volume and prices are improving. The loss on stock by the decline in 1884 has made firm the determination to sell at a profit or not sell at all. Salesmen are generally restricted in the matter of "meeting" prices. In Hardware manufacture there is to be noted the issue of a general discount sheet by the Duggan-Parker Hardware Company, applying to their 1885 catalogue.

Barbed Wire.—The demand for all kinds is increasing, with some preference for Two-Pointed. The bulk of the Wire barbed here is Four-Pointed, and prices on it are not as firm as they are on the Two-Pointed Wire. The following are said to be "agreed" prices:

Four-Pointed Painted Cattle Wire	3¾¢
Painted Hog Wire	3⅞¢
Two-Pointed ⅛¢ additional.	

The above is for unlicensed Wire; for the licensed, ⅛¢ additional for royalty. Galvanized Wire is nominally 1¢ higher. It is a noteworthy fact that agreements referring to maintenance of prices are not subscribed to by several very important manufacturers. The two causes which are of more force in advancing prices of Barbed Wire are not effected by "agreements"—they are the demand of the trade and the advance of prices by Wire mills.

Wire Rope.—Prices of Bessemer and Iron Wire Rope will be somewhat influenced by the sale of over 50,000 feet to one party by the receiver of the Harrison Wire Company.

Nails.—We note an improved demand. Prices range from $2.35 to $2.40 for Iron Nails; Steel is 10¢ higher. Western mills running full.

Scrap Iron.—There have been no material changes, the increased demand being more than counterbalanced by the more favorable facilities for obtaining increased supply, owing to warmer weather and consequent shipment to centers from the country. No. 1 Wrought Mill Scrap, 75¢; Machine Cast, 55¢ @ 60¢; Stove Plate, 25¢ @ 30¢; Old Iron Rails, $17.50 ⅌ ton. Several railroads are reported as having held round lots of Iron Rails for some time in hope of getting higher prices.

Merchant Iron.—Bar, Sheet and Plate are unchanged in prices, and demand is improving.

Spelter.—The bottom price at present seems to be 4¢, and, sooner than sell for less, smelters prefer consigning to agents and using same as collateral for current wants, reserving stock until the interruption of water in mines, or other causes, bring better prices. In 1883 the flooding of the mines stopped mining entirely for several weeks. The excellence of some of the Silicate Ores used by Western smelters of Spelter is shown by a fact that came to light soon after the failure of the Lehigh Company. It appears that 2000 tons of the Missouri Ore was smelted by the Lehigh Company and sold for Bergenport Spelter, and the only customer who referred to the quality was one who wanted more of the same kind.

Lead.—Our receipts are considerably more than during last week and prices are firmer. We quote $3 45 @ $3.50.

White Lead.—There has been an advance of ¼¢. The Collier White Lead Company announce the following prices: White Lead, strictly pure, 5¾¢; Dry White Lead, 5¾¢; Red Lead and Litharge, 5¾¢, in kegs and boxes. When purchases exceed 500 lb, 3 % discount on above. Usual terms of 60 days' note, or 2½ % discount cash in 15 days. Freights are equalized with neighboring points.

Coal.—The prices quoted are between 7¢ and 12¢ delivered, according to quality.

Louisville.

W. B. BELKNAP & Co., Iron and Steel Merchants, Nos. 115 to 121 West Main street, Louisville, under date of March 16, 1885, report as follows: *Bar Iron.*—The market is still inanimate. There is a peculiar flatness to it when one reflects on the number of idle mills and the immense curtailment of production of the past year. The only explanation is that consumption has been likewise cut off, and "there is no health" in it, as says the prayer-book. Nor can we look for betterment in the manufactured article till Pig shows its backbone. The jobbing price hereabouts has been practically unchanged for six or eight months. *Sheets and Hoops* are the same as at last writing. There is some inquiry for the former earlier than usual this year for spring and summer stocks, as few believe that present prices can be shaded even in the usually weak month of May. *Steel* is steady and in right good demand, though the market is always harassed by new brands, imitating in their nomenclature the older well-established ones, cutting prices and "guaranteeing quality," whatever this may mean in such instances. *Nails.*—Deliveries on January purchases are just coming forward from the upper mills, so long shut out by a frozen river. Until such stocks are reasonably distributed there can be nothing expected but a weakish price, as many of the purchasers are not prepared to hold indefinitely the large quantities bought. Manufacturers have made but little stir, but it will presently require more than the present demand to keep them running full. *Wire.*—This article forms a happy exception to the general list. Large quantities of it are moving, and at a better price than prevailed 30 days ago. Some manufacturers are holding out for $5 ⅌ ton advance, with an additional ¼ or ⅛ for Thick-set. The demand for the latter is disporportionately large. Plain Wire is undoubtedly firmer. Some extreme prices have been withdrawn, and little trouble is experienced in realizing the new.

General trade is not altogether discouraging, though the season is two or three weeks late at least, and time once lost in the spring is rarely made up again, as the demands on the farmer become all the more imperative with belated seedtime. Moreover, continued failures reported from all sections are not reassuring. Again, our attention has been forcibly and repeatedly called to the inferiority of goods now being furnished by concerns who have always heretofore lent their name to none but the best. Hoop Iron at No. 18 will gauge No. 16 and No. 15, and have no strength then. The best makes of Tools come in flawy and defective, and the only protection the buyer has is careful inspection. Some of the manufacturers claim that people clamor for cheap goods, and to satisfy that they are obliged to send poor goods. This is a mistake. Poor quality always reacts, and those who are enjoying the best and most remunerative business today are, we venture to say, those who have maintained high quality throughout all the temptation to sacrifice it for temporarily increased sales.

Imports and Exports.

IMPORTS.

The following were the Imports of Hardware, Iron, Steel and Metals into the Port of New York for the week ending March 17, 1885:

Hardware.

Appleton A.
Case, 1
Boker Hermann,
Cutlery, hdw. and guns, pkgs., 44
Boker Carl F.
Mdse., cs., 4
Cortis R. J.
Cases, 8
Hinges and tools, pkgs., 2
Downing R. F. & Co.
Mach'y, case, 1
Drexel, Morgan & Co.
Arms, cs., 21
Frasse P. A.
Lathe, 1
Folsom H. & D.
Arms, cs., 4
Hartley & Graham,
Mdse., cs., 21
Hoe R. & Co.
Mdse., case, 1
Merch. Dis. Co.
Mach'y, cs., 3
Pim, Forwood & Co.
Nails, kegs, 70
Cask, 1
Tools, cks., 8
Ribon & March,
Cane mill, cs., 5
Schoverling, Daly & Gales,
Mdse., cs., 11
Struller, Lau & Co.
Arms, cs., 4
Waterbury & Co.
Mach'y, cs., 4
Walker F. R. & Sons,
Mach'y, pkgs, 8
Wiebusch, Hilger & Co.
Cutlery and hdw., pkgs., 28
Witte John G. & Bro.
Cutlery, cs., 32
Order,
Cases, 6
Mach'y, case, 1

Iron.

Brockner & Evans,
Wire netting, rolls, 197
Cortis R. J.
Wire rope, coil, 1
W. netting, coils, 7
Galv. iron, cs., 3
Crocker Bros.
Pig, tons, 100
Spiegel, tons, 298½
Irwin R. & Co.
Pig, tons, 100
Knauth, Nachod & Co.
Iron molding, bdls., 121
Lillienberg N.
Nail rods, bdls., 565
Lundberg Gust.
Bundles, 311
Bars, 116
Naylor & Co.
Bundles, 666
Bars, 24
Spiegel, tons, 150
Perkins C. L.
Spiegel, tons, 200
Pim, Forwood & Co.
Bundles, 4
Ribon & March,
Castings, 3
Schumann H.
Iron, sheet, 1
Stetson Geo. W.
Pig, tons, 750
Williamson Jas. & Co.
Pig, tons, 100
Order.
Rods, coils, 9320
Wire rods, pkgs., 625
Wire rods, coils, 1916

Steel.

Baltzer & Lichtenstein,
Wire rods, bdls., 218
Baring Bros. & Co.
W. rods, coils, 10,316
Brown Wm.
Cases, 3
Bundles, 58
Downing R. F.
Wire, cask, 1
Jessop W. & Sons,
Mdse., cs, 2
Lillienberg N.
Slabs, 8
Naylor & Co.
Rods, bdls., 3961
Scrap, tons, 155¾
Pierson & Co.
Sheets, 52
Sheet steel, bdls., 4
Wagner W. F.
Packages, 93
Order,
Wire, coils, 13,286
Scrap, tons, 50
Forgings, pkgs., 81
Bundles, 75
Packages, 18

Metals.

Baring Bros. & Co.
Tin plts., bxs., 1264
Bruce & Cook,
Tin plts., bxs., 1305
Bk. taggers, bxs., 35
Crooks, Robert & Co.
Tin plts., bxs., 4094
Dickerson, Van Dusen & Co.
Tin and terne plts., bxs., 1517
Erie and Gt. West. Disp.
Tin plts., bxs., 187
Hunt J.
Lead pipe, cks., 12
Maillard —
Tinfoil, cs., 4
Phelps, Dodge & Co.
Tin plts., bxs., 7496
Bk. taggers, bxs., 475
Reid John,
Sinks, baths, &c., pkgs., 56
Taylor & Co.
Tin, slabs, 555
Tofts Jas. W.
Copper fountains, 4
Order,
Tin, cases, 4
Tin plts., bxs., 20,923
Tin, ingots, 600
Tin taggers, bxs., 166

The imports of Cutlery, Hardware and Metals for the week ended March 13 were as follows:

	Quantity.	Value.
Brass goods	32	3,041
Bronzes	11	1,082
Chains and anchors	1	12
Clocks	10	595
Copper	..	25
Cutlery	62	15,498
Gas fixtures	7	2,043
Guns	48	9,161
Hardware	14	1,934
Iron, pig, tons	649	17,278
Iron, sheet, tons	32	2,471
Iron ore, tons	250	1,155
Iron, other, tons	223	7,706
Machinery	82	3,251
Metal goods	296	34,636
Nails	3	81
Needles	23	6,339
Nickel	1	297
Platedware	12	271
Percussion caps	8	1,230
Pins	4	367
Regulus antimony	104	9,554
Saddlery	6	921
Steel	29,925	49,998
Tin, boxes	21,706	89,978
Tin, slabs, 7681; lb, 684,246	..	114,410
Wire	32	4,160
Zinc, oxide	310	2,560

The comparison with previous dates is as follows:

	For the week.	11 weeks of 1885.	Same time 1884.
Cutlery, pkgs	62	897	1,208
Hardware, pkgs	14	151	202
Iron, R. R., bars	....	....	9,220
Lead, pigs	....	7,187	8,661
Steel, pkgs	29,925	464,280	135,405
Tin, bxs	21,706	289,039	302,352
Tin slabs, lbs	684,246	3,189,139	4,109,728

EXPORTS.

The following list embraces the Exports of Hardware, Machinery, Iron, Metals, &c., from the Port of New York, for the week ending March 17, 1885:

Danish West Indies.

	Quan.	Val
Ptlm., gals	7321	815
Hdw., pkgs	12	120
Ag. imp.,pkgs	2	30
Mf. iron,pkgs.	5	47
Nails, cs	12	68

Dutch West Indies.

	Quan.	Val
Hdw., cs	9	114
Ptlm., gals	1380	140
Tube stoppers	6	33
Mf. iron, pkgs	2	16

Dutch East Indies.

	Quan.	Val
Ptlm., gals	221,000	20,995

Amsterdam.

	Quan.	Val.
Ptlm., gals	397,115	30,300
Ag.imp., pkgs	16	593
Hdw., cs	2	43
Pumps, pkgs.	24	1,700
Old cop.,hhds	12	1,836
Clocks, cs	2	100

Hamburg.

	Quan.	Val.
Saws, cs	2	70
Ag. imps,pkgs	590	9,852
Sew. ma., cs.	498	10,177
S. rollers, case	1	23
Ptg. presses, pkgs	5	550
Arms, case	1	229
Old met., cks.	4	325
Copper, cks.	42	5,500
Hdw., pkgs	230	5,281
Pistols, case	1	32
Clocks, pkgs.	173	3,465
Mach'y, pkgs.	14	2,100
Ptlm., gals.	387,600	30,500
Tinware, cs	3	60
Brass, box	1	25
Copper, bars	11	1,600
Mf. iron, pkge	1	20
Pumps, pkgs.	14	366
Axles, case	1	65

Rotterdam.

	Quan.	Val.
Copper, cks.	437	73,425
Hdw., cs	18	369
Copper, cakes	71	1,200
Mach'y, pkgs.	2	180

Bremen.

	Quan.	Val.
Guns, cs	10	135
Hdw., cs	56	776
Sew.ma., cs	15	500
Ag.imp.,pkgs.	336	5,593

Antwerp.

	Quan.	Val.
Ptlm., gals.	860,675	67,987
Revolvers, cs.	7	1,785
Rivets, cs	2	140
Copper, cks.	72	10,400
Hdw., cs	10	314
Clocks, cs	8	119
Ag.imp., pkgs	27	2,070
Sew ma., cs	134	2,320
Mach'y, pkgs.	48	420
Copper, bars.	170	2,600

Liverpool.

	Quan.	Val.
Mf. iron, pkgs	30	629
Mach'y, pkgs.	70	9,298
Hdw., cs	60	2,952
Ag. imp., pkgs.	113	4,615
Cop. ore.sks.	14,780	65,688
Scales, cs	4	163
Pistols, case	1	250
Shears, cs	2	800
Saws, cs	2	250
Pumps, pkge.	2	80
Cutlery, case.	1	75
Clocks, pkgs.	581	8,758
Sew. ma., cs	109	2,058
Rollers	1294	400
Guns, cs	60	855
Copper matl., sks	1230	4,000
Copper. bars	508	15,150
Wire, bbls.	3	222
Rivets, kegs	20	156
Steel bands,cs	2	640

Copenhagen.

	Quan.	Val.
Corset steels, case	1	77

Hull.

	Quan.	Val.
Hdw., cs	31	723
Turbine wheel	1	173
Mf. iron, pkgs	1980	30,000
Ag.imp.,pkgs.	130	2,520

Bristol.

	Quan.	Val.
Clocks, pkgs.	8	118

Exmouth.

	Quan.	Val.
Ptlm., gals.	100,710	10,295

London.

	Quan.	Val.
Ptm., gals.	442,540	35,403
Firearms, cse.	1	1,274
Mach'y, pkgs.	45	12,563
Mf. iron. pkgs	7	250
Hdw., cs	72	1,736
Nails, kegs	3	59
Cartridges, cs	18	266
Wind mills, cs	28	1,163
Clocks, pkgs.	196	4,473
Ag. imp.,pkgs	1188	24,247
Air guns, case	1	45
Sew. ma., cs.	37	2,741

Glasgow.

	Quan.	Val.
Ox. zinc., bbls	50	346
Hdw., cs	21	898
Clocks, pkgs.	63	1,000

French West Indies.

	Quan.	Val.
Tinware, cs	2	53
Ptm., gals.	303	39

Canada.

	Quan.	Val.
Tin plts., bxs.	25	137
Mach'y, pkge.	1	458

British Possessions in Africa.

	Quan.	Val.
Hdw., cs	5	265
Pt..., gals.	25,250	3,090
Agl.imp.,pkgs	43	770
Cutlery, case.	1	5
Scales, cs	7	155
Clocks, case	1	65
Was. machs.	6	35
Pumps, pkgs.	6	333

Hong Kong.

	Quan.	Val.
Ptlm., gals.	585,220	54,425

Dunkirk.

	Quan.	Val.
Ptlm., gals.	294,058	20,200

Marseilles.

	Quan.	Val.
Ag. imp.,pkgs	25	525

New Zealand.

	Quan.	Val.
Hdw., pkgs	107	2,730
Ag. imp.,pkgs	38	705
Nails, cs	98	2,311
Clocks, cs	51	1,570
Mf. iron, pkgs	709	4,205
Wringers, cs.	9	181
C. springs,cse	1	160
Ptlm., gals.	83,480	11,015
Cartridges,cse	1	7
Axles, cs	5	244
Eyelets, cs	2	123
Mach'y, pkgs.	3	70
Pumps, pkgs.	2	37

New Brunswick.

	Quan.	Val.
Ptlm., gals.	5000	500

British West Indies.

	Quan.	Val.
Cutlery, cs	6	103
Boiler tubes	30	38
Saws, cs	2	37
Mach'y. pkgs.	4	182
Sew. ma., cs.	2	56
Rifles, case	1	45
Mf. iron, pkgs	95	548
Tinware, cs	22	387
Ptlm., gals.	68,026	6,859
Nails, kegs	179	574
Hdw., cs	80	1,119
Y. metal, case	1	58
Tin, bxs	3	15
Scales, cs	24	405
Ag. imp.,pkgs	13	62
Ptg. press	1	700
Clocks, cs	4	94
Tacks, case	1	12
W. mill matl., cs	2	45
Cartridges,cs.	2	29

Newfoundland.

	Quan.	Val.
Tinware, cs	2	19

British East Indies.

	Quan.	Val.
Ptl., gls.	1,525,690	139,983

British Australia.

	Quan.	Val.
Wringers, cs.	27	466
A. guns, case.	1	78
Mf. iron,pkgs.	52	813
Ptlm., gals.	67,200	8,991
Cartridges, cs.	35	735
W. mills, pkgs	24	680
Clocks, cs	42	1,072
S. rollers, cs.	12	282
Ag. imp.,pkgs	40	1,618
Hdw., pkgs	385	5,908
Pumps, pkgs.	12	501
Nails, cs	8	162

Porto Rico.

	Quan.	Val
Ptlm., gals.	2500	249

Genoa.

	Quan.	Val
Pumps, pkgs	4	389

China.

	Quan.	Val
Ptlm, gals.	330,520	35,016

Hayti.

	Quan.	Val
Scales, cs	4	39
Hdw., cs	44	524
Tinware, case	1	7
Nails, cs	8	43
Sew. ma., cs.	5	103
Mach'y, pkge.	1	29
Ptlm., gals.	9472	824
Zinc, cask	1	20
Nails, kegs	154	350
Cotton gin	1	65
Chains and a.	2	33
Mf. iron, pkgs	11	142

Santo Domingo.

	Quan.	Val
Mach'y, pkgs.	55	1,920
Hdw., cs	48	743
Spikes, kegs	20	90
C. wheels, pr.	5	60
Scales, cs	5	57
Rifles, cs.	33	4,500
Ptlm., gals.	11,924	1,688
Mf. iron, pkgs.	26	126
Carbines, cs	5	900
Ag. imp..pkgs	3	37
Cutlery, cs	3	62
Y. metal, cs	1	51
Sew. ma., cs	1	12
Cartridges, cs	65	1,300

Mexico.

	Quan.	Val
Ag. imp.,pkgs	13	191
Ammunition, case	1	110
Mf. iron, pkgs	44	264
Ptlm., gals.	31,597	3,286
Mach'y, pkgs.	64	4,220
Nails, kegs	90	230
Sew. ma., cs	16	412
Nails, bxs	12	96
Cartridges, cs.	14	435
Pumps, pkgs.	5	130
Ag. imp.,pkgs	3	75
Tinware, cs	4	60
Scales, cs	15	154
Hdw., cs	7	326
Clocks, pkgs.	3	45
Tacks, cs	7	100
Perc. caps, cs.	3	146
Cutlery, cs	85	1,582
Min'g caps, cs	20	1,000
Tin plate, bxs	40	158

Venezuela.

	Quan.	Val
Hdw., pkgs	70	750
Ag.imp., pkgs	4	71
Ptlm., gals.	8100	935
Scales, cs	21	642
Clocks, cs	6	117
Br. goods, cs.	6	80
Mf. iron, pkgs	171	932
Sew. ma., cs	50	350
Solder, case	1	20
Cutlery, cs	4	258
Mach'y, pkgs.	3	159
Nails, kegs	5	18

Alicante.

	Quan.	Val
Ptlm., gals.	535,310	42,200

United States of Colombia.

	Quan.	Val
Cutlery, cs	28	1,184
Iron pots	100	126
Guns, cs	3	268
Shot, bags	66	311
P. caps, case	1	52
Scales, cs	6	99
Ag. imp.,pkgs	8	65
Tin, cs.	10	35
Iron, pkgs.	335	800
Iron safes	5	596
Nails, kegs	80	251
Needles, case	1	14
Revolvers, cs.	2	170
Lead, rolls	4	19
Chain, fath	45	372
Copper still	1	353
Wheels on a., pairs	6	240
Ptlm., gals.	11,953	1,475
Mf. iron, pkgs	426	3,602
Hdw., pkgs	116	3,955
Mach'y, pkgs.	100	1,766
Sew. ma., cs.	108	2,294
Tinware, cs	11	183
Clocks, pkgs.	4	285
Pumps, pkgs.	2	19
Saws, cs	2	40
Cartridges, cs	2	17

Africa.

	Quan.	Val
Ptlm., gals.	80,000	7,200
Hdw., case	1	200

Venice

	Quan.	Val
Clocks, bxs	10	1,035

Messina.

	Quan.	Val
Mf. iron, pkgs	2	18

Cuba.

	Quan.	Val
Ptlm., gals.	172,443	15,320
Mach'y, pkgs.	10	597
Mf. iron, pkgs	40	703
Tin, pigs	11	268
Cutlery, cs	30	990
Clocks, case	1	20
Tinware, cs	11	236
Pumps, pkgs.	11	974
Tacks, case	1	35
Lead pipes, cse	1	36
Gin, case	1	53
Hdw., pkgs	79	1,198
Metal polish,cs	3	105
Lead. pigs	11	70
Tin plate, bxs	32	331
Nails, kegs	54	222
Boiler	1	1,320
Ag. imp..pkge	1	90
Iron, pkgs	4	95
Water meter	1	30
Nails, pkgs.	13	132
Wire, cs	2	34

British Honduras

	Quan.	Val
Nails, kegs	12	54
Cutlery, cs	20	255
Ptlm., gals.	8242	859
Saws, case	1	17
Air guns, case	1	26
Tinware, case	1	20

Havre.

	Quan.	Val
Hdw., pkgs	28	573
Armor, case	1	280
Mach'y, pkgs.	2	212
Sew. ma., cs.	16	850
Ag.imp.,pkgs.	1933	48,765
Copper, cks.	113	17,993

Japan

	Quan.	Val
Ptlm., gals.	527,000	50,700

Brazil.

	Quan.	Val
Ptlm., gals.	164,152	15,418
Nails, kegs	283	563
Cutlery, cs	24	690
Mf. iron, pkgs	10	60
Solder, case	1	38
Cot. gins, cs	12	315
Cartridges, cs.	11	225
Rifles, case	1	120

Central America.

	Quan.	Val
Mf. iron, pkgs	34	265
Windlass, box	1	42
Hdw., cs	24	227
Cartridges, cs	2	61
Tinware, cs	4	67
Sew. ma., cs	8	188
Ptlm., gals.	2687	412
Cutlery, cs	5	135
Nails, kegs	20	52
Iron, pkgs	63	374
Mach'y, pkgs.	3	214

The pool practice of forwarding merchandise by the various trunk lines, regardless of the shippers of freight, has brought out an urgent remonstrace to the Legislature, with an accompanying bill. These documents bear the signatures of 500 of the most prominent merchants of all classes, mostly in the jobbing trade, and representing a capital of more than $200,000,000. Freight contracts, it is urged, should be controlled by State legislation. The petitioners urge that the delays occasioned by the diversion of freight to subserve the interests and necessities of the railway pool have caused serious losses and placed forwarders in New York at a disadvantage compared with merchants in other cities.

Trade Report.

General Hardware.

A good many small orders are coming in, but the business is generally reported as light for the season. There is an evident disinclination on the part of large buyers to order beyond their immediate wants, and in many sections the retail trade are waiting until their local spring business sets in more decidedly than it has yet done before replenishing their stock. There is, however, a fair trade doing, and a good many goods are moving. Collections are somewhat easier than they have been, and the financial conditions are fairly satisfactory. The narrow margins of profit for manufacturers and jobbers are the principal subjects of complaint. We give below recent expressions from a number of manufacturers, most of whom are well known, as to their opinion of the prospects of trade.

NAILS.

The sharp spell of cold weather, threatening a retarding of the coming in of the country trade, has led to greater dullness and a little more anxiety to make sales on the part of a few. The majority of the manufacturers are firm at $2.20, but there is no difficulty in placing orders in other quarters at $2.15. The February statement of stocks has not yet been issued. We hear of some sales of Steel Nails at the usual advance over Iron Nails. The export business in Nails is very quiet. We quote, for large lots, $2.15 @ $2.20 for Iron, and $2.25 @ $2.30 for Steel Nails.

BARB WIRE.

The market has continued quiet and is in the same condition as it was last week. The hardening tendency on Plain Wire is not yet telling appreciably on the prices for Barb Wire, which, in cargo lots, is selling at 4.75 cents @ 4.8 cents, while small lots of Four-Point Galvanized are commanding from 5 cents to 5¼ cents.

WHAT MANUFACTURERS SAY.

We have recently received a number of letters from manufacturers in regard to the condition of business and the outlook for the season's trade. We make below extracts from some of them, which will be of interest to our readers as giving an accurate impression of the views of some of the largest as well as of the smaller houses. Our correspondents not expecting that their communications would be published, as well as for other obvious reasons, we withhold their names. One which we have from a leading house may appropriately be placed first, referring as it does to the uncertainty that characterizes predictions as to the course of trade. The hint which is thrown out as to the writer's identity we leave with our readers:

We have ceased to prophesy. We have failed disastrously since the beginning of 1884. Prior to that time we thought we were up in the profession, but we are now on the retired list, and are in the sere and yellow leaf. We are waiting for the good times, and we reason that we can see the dim ray dawn of the morning. Certainly there has been a substantial improvement since January. We are not crowded with orders, but we are fairly provided with these essential business features. The quality and finish of our goods are maintained, and we think we are making even better products than we ever made. You should know that we have always maintained that we make the best Bolts, Nuts and kindred articles that are made on the planet. What are made elsewhere do not enter competition with ours.

Samuel Disston, of Henry Disston & Sons, Philadelphia, in a recent interview gave his opinion that business is already showing signs of improvement. Stocks in dealers' hands are light, and for some time past orders for both Saws and Files have been coming in quite rapidly, although at present only small lots are taken. Mr. Disston thinks that on the first indication of an advance orders will be sent in from every direction, and that such an event is liable to occur at any moment, so that, while prices are at present very unsatisfactory, an improvement may be expected before long. The foreign trade of this firm is reported as steadily increasing, particularly in South America, a recent accession being the business of one of the leading firms in Chili, who have handled English Saws for upward of 30 years.

One cause of the demoralization of prices is referred to in the following from a Western house:

The trade in our line is more demoralized than ever before known; light demand and a cutting in prices such as were never looked for by manufacturers. We see little of encouragement in the immediate future. We are of the opinion that one great cause for the manufacturer being obliged to sell his wares at little or no profit, besides the cause of overproduction and limited demand, is the growing custom of releasing control of his goods to agents—that is, by consigning his goods to commission men who have no interest in the manufacture other than their commission. When the manufacturers in any line commence putting the sale of their productions in the hands of others outside their own office, so soon will the shaving process commence and never stop until the life and substance is entirely shaved away.

The following from an Eastern manufacturer gives a careful statement of the situation as he finds it:

There appears to be reasonable assurance of an improvement over last season in our line. Most of the dealers have carried over light stocks, and have recently made up their orders only to meet immediate requirements, and we think, under the influence of the brighter outlook, they will soon be inclined to replenish their shelves more liberally. We certainly know that more inquiries for price lists, catalogues and discounts are now coming in than one year ago, which, with a fair sprinkling of orders and the general good feeling reported by our agents, leads us to the belief of better days ahead.

A well known house thus expresses a more hopeful view than is given by many of our correspondents:

This month's business far surpassed the corresponding time last year, and, in fact, the last two years. Everything seems to point to a better trade and renewal of confidence among buyers. The advance of prices in several Hardware items gives trade an impetus long needed, and we firmly believe all goods will advance in proportion. We placed large orders for Iron this month (February) on the strength of our belief in above facts.

A very large house, of the highest standing, thus refers to the outlook:

We are not enlarging our works. On the contrary, have not business to employ fully the present capacity. We have not made an addition to our line of goods, having confined ourselves strictly to the class of goods always manufactured by this company. There are no very recent changes in the price of goods, prices being extremely low already, and will necessarily rule so until there is a better demand. When that will come it is impossible to say. The prospect now is not very flattering. We are hoping for better times, as all are.

A New England manufacturer, not very widely known to the general trade, thus writes:

We have tried to lessen discounts, but it did not work well, and they remain about as before. Our salesmen predict largely increased sales soon. We hope they are right, but the present stagnation of general business does not inspire confidence in a better future.

The following report from a leading house in their line gives, it will be seen, a satisfactory impression:

Our sales so far since January 1 are fully 33⅓ per cent. over the amount of orders received at same date last year. We have every reason to believe that our sales will exceed those of 1884.

To a similar purport are the advices of a Western company:

As to trade, we can say that, judging from the numerous orders we have received since January 1, and nearly all of them unsolicited, the prospects are very flattering for a good trade the coming season.

The following is from a manufacturer in this State, and does not, it will be seen, present a very sanguine view of the situation:

We have recently written all of our customers in the different States, asking their views as to the outlook for trade, as well as their knowledge of the present condition of trade in general in their respertive localities. The replies so far received all agree that long-felt depression in business continues, without immediate prospect of improvement. While nearly all speak in high terms of our goods and promise us orders when trade revives, we are forced to the conclusion that the spring trade will be light. We hope, however, for an upward tendency as the season advances.

A concern which has not been long before the trade thus describes the condition of the market in their line:

Orders coming in but slowly up to the last two weeks. Since then some signs of improvement. Last week was quite brisk, and outlook for the season that we will have a better trade this spring than last, owing to the fact that our goods are new and are just becoming known.

The following is from a New York manufacturer whose goods are widely known:

We note some improvement in our trade this month over that of last month, but it seems to us that the prospects for a good year's business are not encouraging.

A house engaged in the manufacture of Tinware, writing from the West, say:

We anticipate a fair spring trade, though the extremely cold weather makes it late in opening up. We believe the bottom has been reached, and that there will be a steady improvement in trade from now on.

Agricultural Implements are represented in the following extract from a communication of a large concern:

Our list prices and discounts are substantially the same as last year, and we understand such is the case with manufacturers generally. Though a conservative cautiousness seems to prevade business generally, yet from the number and tone of inquiries we anticipate a fair season's trade.

Parties who are interested in one of the several depressed lines of Hardware thus review the trade:

We have been kept from the market for several years by combinations broken, and pools not observed honorably. Since January we have done a large business at exceedingly low prices. We see no prospect of a prosperous business before fall, and it is likely that jobbing houses will not buy goods except at prices below which there is not probability of decline.

A large Eastern house says:

We think the prospects for a spring trade are good, and with us the trade is already started. We are also having a good many inquiries for prices, indicating that buyers are looking round for goods and getting ready for business.

The following careful and encouraging remarks will be read with interest, and with the hope on the part of the trade that the predictions of marked improvement may be realized:

We think that the spring business will be good. The extreme cold weather, combined with heavy snow falls has impeded travel and blocked the roads in the country, and, were it not for this, the improvement in trade which was so manifest to the middle of January would have continued. Stocks in the hands of dealers are low, and now that buyers, almost without exception, believe that the lowest possible prices have been reached, it will only require some slight cause to start the timid into buying. No one can make a mistake, if they have the money, in purchasing for their legitimate wants freely, and those who have the foresight to make their contracts early will get advantages that will not occur later. The stocks in manufacturers' hands generally are probably smaller than at any time for years, while the producing capacity, caused by the shutting down of so many factories, has been largely curtailed. We believe that 1885 will show a marked improvement over last year, and that business, taken as a whole, will be satisfactory.

The following communication from a large manufacturer of Agricultural Implements touches other points than the condition of trade, and will be of especial interest to our readers. The fact mentioned that he has been in business for 28 years without having a strike or other difficulty with his employees is worthy of note:

Your favor of the 23d arrived during my absence at the New Orleans Exposition. By the way, I was very much pleased indeed with the exhibit there. It is the best in many respects the world has ever seen, and the managers deserve credit rather than censure for the gigantic work they have so well accomplished in so short a space of time. I earnestly trust that Congress will give the support necessary to insure the fullest success. In regard to my works, your inquiry is best answered by the copy of my new catalogue, just out of press, which I mail you. I am constantly enlarging and improving, adding new machinery and improved methods. The most radical advancement of the past year, has been the adoption of the piece system, which, I find, after careful and competent inspection, works admirably. Work is best done and more of it, and the employees average better wages. I have made no reduction this winter either in employees' time or wages. Have scaled prices or increased discounts on everything to suit the times. My shops are as nearly fire proof as they can be made, and are well supplied with water-works for extinguishment of fire. Have not been troubled with casualties or strikes. Have been in business for over 28 years, and never had a strike or difficulty with my workmen. Now, as to the prospects of spring trade. I think the bottom has about been reached. Not more than reached, however, and the improvement this spring will be slow, if visible at all. I am encouraged to believe, however, that trade will revive during the coming year. There is a great deal of work to do. Our population is rapidly increasing, our surplus product will be wanted abroad and I am encouraged to believe from President Cleveland's letter on on the silver question, and his views upon the importance of increasing our export trade, that we will have everything to hope for from that quarter—certainly nothing to fear.

A New England manufacturer in a special line thus reviews the situation:

In regard to the spring prospects for trade, I have many inquiries for prices, &c., and my business has been larger during the past three months than for same time a year ago. Anticipate a fair spring trade, subject to financial conditions. With considerable general confidence, money will be released for improvements and new enterprises essential to the employment of the masses, who directly or indirectly consume goods only as they have the means to put into circulation, by which the machinery is greased and the mare is made to go.

A large and influential house in Kentucky writes as follows:

Trade in our line of manufactures was exceedingly dull until after the 1st of January. Since that date we have been crowded with orders and running our factory at fullest capacity night and day for the last month. Prices are ranging very low, and purchasers seem to be buying advantageously and looking for cheaper classes of goods. Collections have been fair. We have made several additions to our line of new implements adapted to the sugar line trade, but, as this is about the end of the season, there will be no changes in list or discounts. The prospects for the spring trade are good, but we do not expect the gross sales of last season to be more than equaled. The demand from abroad for our goods is increasing, necessitating our sending special agents abroad this spring to take up their residence at one or two points.

There is nothing especially encouraging in the following, from a manufacturer of this State:

In regard to spring trade, we have no great expectations. We do not think the outlook encouraging, and see nothing ahead to justify an opinion that an advance could be maintained.

But a concern in New England gives a very much more cheerful view of the situation:

Our trade and business could not be in a more satisfactory condition. We are absolutely crowded with orders, and have every indication of a splendid year; at least the opening has been almost unprecedented.

The following is from a well-known manufacturing concern of this State:

We think that we cannot offer any opinion of value as to future trade. We have nothing upon which to found one. With us there was some motion in February—a little stirring of the waters, but it meant nothing. It was only a natural sequence to the phenomenal dullness of the preceding four months. Matters have a very hopeless look at present, but better times must come some time for those who may be so fortunate as to realize them.

From the president of a well-known manufacturing company of New England we have a much more satisfactory view of the condition of business, so far as it may be judged by the activity which they are experiencing, and the steady and very satisfactory demand for their goods. They are perhaps more fortunate than some in having a regular and uniform trade, but the report which they make of their business thus far this season is certainly very gratifying, as, after referring to other satisfactory features, they say:

Our January and February sales for 1885 were above the average for the last ten years, while the March orders have fairly snowed us under. This morning's mail is is the largest in 20 years.

MISCELLANEOUS PRICES.

The general impression prevails that Augers and Bits at present prices are exceptionally low, and sold so near the cost of manufacture, if not actually below it, that they must before long command higher prices. One manufacturer, without any desire of having the fact announced, has expressed the view that good and honest Augers and Bits at discount 70 per cent. will no more than pay the cost of manufacture, if anything is allowed for interest on capital and wear and tear. Another advises us that anything below 70 per cent. discount is a positive loss, and expresses the opinion that if the trade can buy at any concessions beyond this price, and are in want of the goods or have capital to carry them, they think it would be an advantageous purchase, as in their judgment a slight increase in volume of business would cause the goods to advance. The manufacturers, we believe, are generally pursuing a conservative course, most of them being so situated financially that they can reduce their production or even close their shops until there is a better condition of things. It is intimated also, as indicating that the goods are not likely to go much lower, that wages have been reduced in many of the factories as much as seems feasible. It is, of course, difficult to prognosticate with certainty as to the future course of trade, but the opinion is certainly very general that anything of an active demand would develop a scarcity of Augers and Bits and cause an advance in price.

The giving of special discounts on Planes by some of the jobbers still continues. It is intimated that perhaps this irregularity is in connection with stocks of Planes purchased previous to the adoption of the present system. The matter came up for discussion at the late meeting of the Plane manufacturers, who carefully considered the situation. If the measures adopted are not successful, it is not unlikely that they will decide to abolish the rebate at their April meeting.

Some of the leading manufacturers of Tackle Blocks have been conferring, to see if something cannot be done to put the market on these goods in a more satisfactory condition. The irregularity of prices which has been developed is the matter to which they are giving their chief attention, but it remains to be seen whether they will succeed in making an advance, as some of the manufacturers have not thus far signified their desire to take part in such a movement.

Q. S. Backus, Winchenden, Mass., manufacturer of Braces, quotes the following prices to the trade, goods delivered from factory, f.o.b.:

	List.	Discount.
No. 114, Nickel-Plated	$21.00	50&10
No. 113, Nickel-Plated	24.00	50&10
No. 112, Nickel-Plated	27.00	50&10
No. 111, Nickel-Plated	30.00	50&10
No. 110, Nickel-Plated	33.00	50&10
No. 31, Nickel-Plated	33.00	50&10
No. 32, Nickel-Plated	36.00	50&10
No. 33, Nickel-Plated	33.00	50&10
No. 6, Polished	21.00	60
No. 8, Polished	24.00	60
No. 10, Polished	27.00	60
No. 12, Polished	30.00	60
No. 14, Polished	33.00	60
No. 16, Polished	40.00	65
No. 18, Polished	44.00	65
No. 20, Polished	47.00	65
No. 29, Polished	26.00	60&10
No. 7, Polished	14.00	65
No. 9, Polished	15.00	65
No. 11, Polished	16.00	65
No. 21, Nickel-Plated	35.00	60
No. 30, Nickel-Plated	88.00	65&10
Drills	1.43	25
No. 23, Nickel-Plated	23.00	60&10
No. 24, Nickel-Plated	27.00	60&10
No. 26, Nickel-Plated	54.00	60&10
No. 27, Nickel-Plated	42.00	60&10
No. 28, Nickel-Plated	60.00	60&10

The Withington & Cooley Mfg. Co, Jackson, Mich., in their Circular No. 3, March 10, call attention to the fact that their quotations on Steel Goods have not applied to Warren Hoes, and they give notice that hereafter they will not apply to their "Ivanhoes" nor Patent Steel Bow Rakes. They also inclose an attractive advertising card, in which the "I've an hoe" is ingeniously represented.

On page 16 will be found the revised prices of the Manhattan Hardware Company, Reading, Pa. This company refer to the satisfactory working of their scheme of prices. They refuse, it will seen, to make any devintion from published quotations on orders amounting to less than $1000. They also state that orders for less than $25 worth of goods will not be accepted.

The Bromwell Brush and Wire Works Company, Cincinnati, Ohio, to whose catalogue we referred in our last issue, publish discounts for the spring trade, among which are the following:

	Dis. per cent.
Brushes	50
Turkey Dusters	60
Wool and Hemp Dusters	50
Feather Dusters, (except Picture Dusters,)	60
Picture Dusters	50
Duster Handles	Net
Whisks	50
Crumb Brush and Tray	50
Window Cleaners	50
Wire Goods.	
Sieves, Wooden	50
Sieves, Tin Rim, 1 to 10 doz	50&10
Sieves, Tin Rim, 25 doz	50&25
Sieves, Hunter's doz	$2.25 net
Sieves, Hunter's, gross	$25.00
Sieves, Electric, doz	$2 net
Sieves, Electric, gross	$21.00
Wire Goods	50
Dish Covers, Round, except 12-14 in	60
Dish Covers, Round, extra sizes	33⅓
Dish Covers, Oval	33⅓
Special prices on application to buyers of 50 sets or more.	
Fly Traps	50
In 25 doz. lots—special prices to jobbers.	
Wooden Bird Cages	50

E. M. Richardson, Waltham, Mass., manufacturer of the Shedd Spring Steel Wire Blind Fastener, quotes the following prices, an additional discount of 5 per cent. being given for cash within 30 days:

Fasts, less than 5 boxes, per 100 sets	$7.00
Fasts, 5 to 10 boxes	6.50

When the goods are packed in less than 100-set boxes, 50 cents per 100 sets is charged extra. The increasing demand for Shedd's Blind Fasts, for wood and brick, has obliged Mr. Richardson to enlarge his works and increase the number of hands employed, and, having leased the foundry recently occupied by A. S. Hodges, Chelsea, Mass., he will continue the manufacture of Hodges' Sash Weights. He announces that, by an improved method of molding, he is enabled to make a weight that is seamless, with a steel top which will not break. It is also claimed that it hangs perfectly perpendicular, and requires less cord to hang it. Its price is $25 per ton, discount 10 per cent. for prompt cash, f.o.b. Boston.

THE CENTRAL STAMPING COMPANY.

At the conclusion of the Trade Report on a following page we give the section of the list for Pieced Tinware which is about to be issued by the Central Stamping Company, 25 Cliff street, New York. There is little doubt that this list, as well as the others which have been issued, will become the standard, and be adopted by other manufacturers of Tinware in the country. It is subject, as the other sections are, to a discount of 33⅓ per cent.

CATALOGUES, ETC.

Mallory, Wheeler & Co., New Haven and New York, are about to issue a new price list which combines the changes made in the list of Locks and Padlocks, December 10 and February 4, with the list prices of many new goods revised to March 10. These new goods include Store Door Handles and Locks, Butts, Flush Bolts, Push Plates, Anti-Friction Sheaves, &c., in various styles of finish, bronze, brass, ornamental and plain. They also announce the introduction of their new German Bronze finish for ornamental ironwork, to apply to Store Door Handles, &c. New pages for their 1882 catalogue, illustrating and describing the above new goods, will also soon be issued. They are now removing their New York house to 64 Reade street, where they will continue to be represented by F. A. Brower, and where they will have more extensive offices and sample rooms and carry a complete stock. Their facilities for the transaction of the growing business of their New York branch will then be largely increased, and they will then be in a better position to serve the convenience of the trade.

The Snell Mfg. Co., Fiskdale, Mass., for whom Bates, Wilson & Co., are sole agents, 294 Broadway, New York, have issued a new catalogue of Augers and Auger Bits, Boring Machines, &c. This pamphlet represents the well-known line of goods of this company, with some additions. Among these we may direct special attention to their Ship Auger Pattern Car Bits, which are designed especially for boring hardwood and intended for the use of bridge-builders, car-builders, wagon-makers, &c. They report an increasing demand for this article, the Single Twist being preferred, for the use for which it is intended, to the Double Twist Car Bit, which has heretofore been principally used. The company are also putting on the market Ship Augers with Rings, Single Twist Boring Machine Augers and Ship Augers with extra length twist, the latter being made with twist 18, 20, 22, 24, 30 and 36 inches.

The Ellrich Hardware Mfg. Co., Plantsville, Conn., for whom the Alford & Berkele Company, 77 Chambers street, New York, are special agents, have issued a price list for the current season, which shows that they have added several articles during the past year. Among these they direct special attention to their New Ratchet Screw Driver and Ratchet Screw Driver Sets. The list also represents their Patent Socket Screw Driver, Olson's Patent Spiral Screw Drivers, Screw Driver Sets, Socket Scratch Awls, Socket Belt Awls, Patent Bull Rings, Lathe Chuck for woodwork, Patent Saw Sets, Nail Sets and Improved Washer Cutter.

From Edward Thomas & Co. (the North Shropshire Agricultural Implement Works), Oswestry, England, we have a catalogue of their Patent and Registered Sheep and Cattle Feeding Appliances. It represents a number of these articles with which the trade in this country are not familiar. Among these we may mention, as giving an idea of the line of goods, the Combined Sheep Rack and Feeding Trough, Galvanized-Iron Sheep Trough, Galvanized-Iron Cattle Trough and Calf Trough, New Patent Cattle and Colt Feeder, and other similar articles, all of which are made entirely of Iron.

The catalogue of the Concord Axle Company, Penacook, N. H., illustrates the well-known Concord Axles, representing the different styles which they make. Special circulars are also issued calling attention to special goods in this line. The Concord Express Axle is spoken of a leading article, and points to be made in its favor are enumerated.

TRADE MATTERS.

The condition of trade and the outlook for the season's business are referred to as follows in a private communication from a jobbing house in Tennessee :

In regard to the situation in this section, would say we still look for a fair spring trade this and next month if the weather remains favorable for agricultural and other outdoor pursuits. The past two days have been fair and spring-like, and there have in consequence been a number of merchants in this market making purchases, and we have also had about as many orders as we could handle. Prices, of course, remain low, and margins very narrow, but we hope for better things in the fall. Collections are poor, and this scarcity of money causes purchases to be smaller than they would be if it was more abundant. However, the state of affairs here is much better than in many places, as the resources of our section are many and valuable, and most of our farmers and country merchants have abundant assets of one kind or another on which they will ultimately be able to realize the cash.

The following communication from a well-known manufacturer, whose views are entitled to weight, refers to the unsatisfactory condition of prices and the unscrupulous means by which some buyers endeavor to secure low quotations :

Trade with us, while coming in different ways and in smaller lots than in former years, is good, and we think, in the aggregate, will not fall short of last year. The deplorable condition of the market prices for many goods is owing in a great measure to the manner in which quotations are treated by buyers. The rule with the great majority of buyers is to deceive sellers, if they do nothing worse. Another reason is that many salesmen allow quotations on one article to affect other articles and sometimes the whole line. It is not an uncommon thing for a manufacturer to have a surplus stock of some particular size or pattern, and to make a special offer on that, in hopes to reduce his stock. If it is sold at a loss at the special discount which he offers, the buyer that he offers it to will recite to other salesmen in that line this particular quotation, without giving the facts. If a Bolt man, for instance, has an overstock of one particular size of Bolt, and makes a special discount on that, the next representative of a Bolt factory is informed by the buyer to whom this special offer was made that Bolts were offered to him at such a discount. It is true he recites the facts, but he does not tell all of them, and Bolt salesman No. 2 is allowed to suppose that the market is off, and he meets it. Take the Steel-Goods business to-day, for instance. Some one making only Forks has an inferior quality of goods. In order to dispose of them, he makes a special offer, which is (strictly speaking), only what the goods are actually worth, and every jobbing Hardware house in the country who hears of that special offer expects to buy a full line of Steel Goods at this figure, notwithstanding the manufacturer who has quoted him may not make a single Hoe, Weed Hoe or Rake. In the end the manufacturers who meet the prices lose money on the goods, and the jobbers do not make a cent. As the manufacturers are weakened through them, they, through their traveling salesmen, weaken the retail buyers, and no one is particularly benefited. The matter of 5 cents less to the farmer is hardly felt by him, while half of that to the jobber, or one-quarter of it to the manufacturer, is an important factor. We hope soon to see the time when both manufacturers and jobbers have backbone enough to name a price and decline all orders that are not in conformity to their quotation; then, besides a better profit, a better feeling will exist among competitors, whether manufacturers, jobbers or retailers.

Referring to the difficulties attending the successful prosecution of the Hardware trade at the present time, we have the following letter :

Failures among the Hardware men of the country have always been noticeably scarce when compared with almost any other line of the mercantile business, but with the constant decrease of values of stocks, and the extremely close margins on which goods are sold, we here and there see a good man gone—not gone wrong, but forced to the wall, and gone because he had sent good money after bad until his dollar wouldn't reach. With staple goods on the market, at prices now quoted, it catches the old line Hardward merchant with such a stock on hand very short. We have had the same effects before; goods have depreciated very rapidly, only to boom their way up with a rebound as great in proportion as was their decline, but never before in the history of the younger Hardware merchant has the decline been so continuous—so absolutely near reaching the bottom. With not much in prospect to make advances strong or rapid ones, we see no other way out than to keep in shallow water, keep as many goods off our shelves as possible, unless we be judicious speculators, with plenty of good money to back our ventures and allow us to wait until goods regain their values and begin once more to sell for a profit.

A Hardware man in Indiana, writing as late as the 14th inst., refers to the bad weather as still interfering very seriously with business :

The past week has truly been a dull week in all respects, both as regards trade and the visits of traveling men. The country roads are almost impassable. The snow has melted in some places and there are large drifts in others, so that it is neither sledding or wheeling. Near the city and on our business streets there is no snow. No country produce is coming in. The weather continues so cold that no spring work can be done. Every one is becoming almost discouraged of ever having any warm weather.

ITEMS.

The factory of the St. Paul Plow Works, St. Paul, Minn., was destroyed by fire on the 3d inst., together with nearly of their manufactured stock in warehouses. Temporary arrangements have been made with the St. Paul Harvester Company, which will enable them to continue without interruption the manufacture of their Harrows. It is intimated that, while there may be a slight delay in filling some orders, goods will be supplied in ample time for the spring trade. Prairie and Brush and Grub Breakers were fortunately saved from the fire, and can be supplied at once. The rebuilding of the works will be commenced immediately, and in a short time it is announced that all branches will again be in full operation.

The Humphryes Mfg. Co., Mansfield, Ohio, have been organized for the manufacture of a general line of Iron and Brass Lift and Force Pumps, including Cistern and Pitcher Pumps, Well and Well Force Pumps, Single and Double Acting Hand and House Force Pumps, Windmill Pumps, Lawn, Garden and Greenhouse Pumps, Hand and Power Rotary Pumps, Boiler Feed Pumps, Hydraulic Rams, Iron and Brass Pumping Cylinders of every description, and other Hydraulic Machinery. The business is under the management of John Humphryes, Jr., for many years connected with the Goulds Mfg. Co., of Seneca Falls, N. Y., and the Silver & Deming Mfg. Co., of Salem, Ohio. The buildings of this company, it is announced, when completed, will be as follows: 80 x 210, 40 x 180, 80 x 180, the works having a capacity of 250 Pumps per day. About 75 men are now employed, but it is intended to increase the force to 250. The company allude to their facilities for producing goods of superior quality and at low prices, and announce that they will be able to fill orders for the leading styles about April 1st.

The Shepard Hardware Company, Buffalo, N. Y., advise us that the following circular is about to be issued by Camilla M. Buttles, widow of C. A. Buttles, Milwaukee, Wis. :

Please take notice that Shepard Hardware Company, Buffalo, N. Y., are the only parties authorized to manufacture Buttles' Patent Cylinder Rings and Buttles' Patent Fire Pots or Tinners' Stoves. Being largely dependent upon the royalty I receive from said firm for my support, it was expressly stipulated at time they obtained sole right to manufacture goods named that all infringing manufacturers, or dealers selling Rings made by infringing manufacturers, were to be prosecuted to the full extent of the law. I therefore hope all of the trade will refrain from purchasing or selling any infringing Ring or Fire Pot, and so save annoyance and expense of litigation.

Lyman H. Drake, Burlington, Iowa, issues a price current for the spring trade, showing a line of Steel Goods, Rakes, Scythe Snaths, Scythes, Farm Bells, Clevises, Wheelbarrows, Lawn Mowers, Shovels and Spades, and a number of other articles.

The Blair Mfg. Co., Springfield, Mass., issue their list for the "Acme" Lawn Mower in the form of a sheet representing the different styles they manufacture, showing the different parts of the Mower and giving prices, directions for using, &c. They also issue circulars for general use, describing the "Acme" and the "Easy," with attractive pictorial representations of the Mowers in use. Their posters representing the Mowers are striking and effective.

The New Era Skate Company, 120 Hanover street, Boston, Mass., have issued an attractive poster which illustrates and advertises their Roller Skate. We have also their circular calling attention to some changes in prices, and referring to the special features and advantages of the "New Era."

Thornberg & Glessner, of Chicago, have contracted with W. J. Clark & Co., of Salem, Ohio, to establish at Chicago a depot for the Salem Elevator Bucket, from which Western dealers and consumers can be supplied. This will save time and transportation for miners, millers and elevator men in the Northwest who wish to patronize that Bucket.

The Norfolk Shear Company, Norfolk, Conn., for whom Samuel A. Haines is agent, 88 Chambers street, announce that, owing to the fact that other parties are manufacturing Shears stamped "Conn. Shear Company," they have decided to change the name of their Conn. Shears, and have adopted the name "New England Shear Company" for their goods, which will in future bear that stamp. They have also changed the pattern by making one blunt point instead of two sharp points. They announce that in orders of a hundred dozen or more they will stamp their customers' name or brand if desired

E. E. Graves and G. T. Moore, under the firm name of Graves & Moore, have opened an office at 112 Chambers street, New York, where they will carry on business as agents for manufacturers of Hardware Specialties and Tools. They also announce that they will do New York buying on a small commission, and that they will be pleased to make contracts to act as New York correspondents for Hardware houses, keeping them posted concerning new and desirable goods that are placed on the market, giving personal attention to the selecting and purchasing goods ordered, and in other ways acting as confidential agents for the parties they represent.

It is announced that Peabody & Parks, of Troy, N. Y., have acquired a right to manufacture Clark's Patent Family Oil Can—a 5-gallon Can with Pump—and are equipping a large shop at Troy for the purpose. This firm has been selling these Cans extensively through the Eastern States for some time, having them made by the patentees, W. J. Clark & Co., at Salem, Ohio.

Thomas Laughlin & Son, Portland, Me., manufacturers of Tackle Blocks and Shipping Hardware, are about to occupy their branch store, 184 and 186 Commercial street, an addition to their present buildings. It is a four-story structure, the lower floor of which will contain offices and a full line of goods of their own manufacture, as well as an assortment of Marine Hardware for the retail trade, the upper part of the building being devoted to storage and manufacturing purposes. This makes the third building they have added within the past four years for the accommodation of their trade.

Meyer & Kingsland becoming Meyer, Kingsland & Co., 10 Warren street, New York, announce that they have associated with themselves R. T. Hazell, formerly of the firm of R. T. Hazell & Co., Hardware and Cutlery auctioneers, and for the past 11 years senior member of Hazell & Co., Hardware merchants of this city. Their purpose is to devote attention to Hardware, Cutlery and House Furnishing Goods in connection with their Crockery and Glassware business, in which department they will have the special assistance and co-operation of their new partner. Their card calling attention to their business will be found on page 22.

The Iowa Barb Wire Company, who are the sole agents of the patents held by Norman R. Douglass on Post-Hole Diggers, warn the public that they have begun suit for infringement of the patent referred to against the Eureka Digger Company, of Chicago.

Attention is directed to the Special Notice on page 22, in which E. Bissell & Co., the Hardware auctioners, announce their coming sale, of which they give particulars which will interest the trade.

SHEFFIELD STEEL.

An animated discussion has been carried on in the Sheffield papers on the question whether or not the Steel manufacturers of Sheffield are permitting the quality of their Steel to deteriorate, and to such an extent as to endanger the high reputation it has held, and render it unsuitable for use in the manufacture of the best Cutlery and Tools. Our readers will be interested in the controversy which opened with the following letter from John Wilson, in which it will be perceived that an American manufacturer of Chisels is quoted :

So much has been recently said and written about "free" and "fair" trade"—the using of the trade-marks of other people—that I hope you will allow me a few remarks on the character of our productions. And at the outset allow me to say that, with the exception of a small sum invested in a "limited company," I have no pecuniary interest, directly or indirectly, to warp my judgment. At the same time no person feels a greater interest in the welfare and reputation of my native town I shall not enter into the question whether "machine-cut" Files are sent out labeled "hand-cut" or not. I will deal only with the quality of the material of which our Files, Tools and Cutlery are made. A few months since I sat at dinner next a member of one of our Sheffield firms of repute, and between the courses we chatted about trade matters. I may say the gentleman was many years my junior, and he said some of the manufacturers say "that the workmen will not do their work as well as they used to do." In reply, I said, from an extensive knowedge of the workmen in our old staple trade, my opinion was that men could and would do their work as well as ever if they were paid for doing it. I further stated that, in my opinion, the danger to the reputation of Sheffield did not arise from the workmen so much as from the manufacturers themselves using a low-priced and often worthless Steel. In reply my neighbor said, "I am very much of your opinion.

In my writing and speeches years ago I always held that good Steel was the foundation of excellence in Cutlery and Tools; that the most skillful workman could not make a first class article out of inferior material. In my official report of the Paris Exhibition of 1867 I said: "The conclusions I have drawn as to the relative position of England and other countries in the manufacture of Cutlery are as follows: We possess, first, superior natural advantages, more especially good grindstones and a cheaper supply of Coal and Steel. 2. Abundant capital, which promotes economical production by the concentration of machinery in large establishments, and allows a better division of labor. 3. The extensive commercial relations of England give us the best markets for supplying ourselves with raw materials. This will be seen from the fact of our Sheffield Steel-makers having a monopoly of the best Swedish iron for converting into Steel—as for example, Iron with the celebrated brand 'Hoop L' can only be obtained through Messrs William Jessop and Sons, whose experience as Steel-makers goes back to the last century. The very foundation of excellence in Cutlery is good Steel, and in this at present we stand unrivaled."

In the "Cabinet Cyclopædia," published in 1831, Vol. I, on Iron and Steel, on page 243, there is given the opinion of a Sheffield Steel-maker, which contains the whole secret of making good Steel. He says: "The great secret is to have the courage to be honest, a spirit to purchase the best material, and the means and disposition to do justice to it in the manufacture." In the recent controversy between Mr. Seebohm and Sir Henry Bessemer, neither got beyond this; and now I ask serious attention to the following extracts from a letter received this week from an old personal friend of mine, a Sheffield man of practical experience, who has been manufacturing in the States for more than 30 years. He says: "Business is somewhat dull. Our sales for 1884 were about 5 per cent. less than in 1883. However, many concerns cannot make so favorable a showing. At present we close our works on Mondays; other than that we have made no change. In regard to Steel we cannot see our way clear. We do not dare to buy from stock of ——'s (I omit the name) agents in Boston. We have imported two lots of Steel this past year (1884), but the material is not equal to what we used to buy of their make in 1879 and all years before that time. Their price is high enough—14 cents per pound. I fear that the most famous houses are not entirely innocent of mixing inferior metals with their Steel. I think they either use some portion of 'Bessemer,' or they mix in too much unknown scrap, or they buy inferior brands of Swedish Iron. However it is, the product is not of that high standard it used to be."

My friend gives some results of testing the Sheffield Steel against some American, not to the advantage of ours. These I omit, not being desirous of doing too much with a private letter. But my correspondent says: "The American Steel-makers, I know, could make good Steel, for I saw some in 1863, but they failed to make it uniform in temper and quality. I think there is much less complaint now in regard to this matter. * * * Recently we have had so many cracked Chisels, the product from English Steel, that we have become alarmed. There would be as many as three dozen out of twelve cracked of 1½-inch Chisels. Four out of five of our hardeners are Sheffield men of experience, and they cannot account for this trouble. * * * To me it appears as though Sheffield Steel will not be in much demand in the American market in five years from now." Is it not time for our firms of reputation to look to their laurels? Bad Tools to the workmen would be dear as a gift. The only way to hold our own is not trying for "cheap and nasty," but, as our fathers did, strive for excellence. JOHN WILSON.

98 ANDOVER STREET, SHEFFIELD, January 29, 1885.

P. S.—The question raised by Mr. Mappin, M. P., at the Technical School meeting on Tuesday about Sheffield Steel-makers is outside the scope of my letter. J. W.

It also appears that Mr. T. P. Mappin, M. P., has been making a speech, in which he calls attention to "the complaints that had been made with regard to Sheffield Steel-makers not being able to supply the Government with the Steel required by them for making Guns, either in bulk or of the quality required." He then says: "The Government is compelled to manufacture Steel at Woolwich, because it cannot be supplied from Sheffield, and that hitherto this has been the case."

With reference to this statement, and the whole question as to the alleged decline in the quality of Sheffield Steel, J. Rossiter Hoyle publishes a letter in which, among other things of a personal nature, he says :

An inquiry addressed to the large Steel manufacturing establishments of Sheffield, whose names are well known to you, will soon satisfy you that not only the requirements of English ordnance manufacturers, but those of the English and every foreign Government who have applied to purchase Steel at Sheffield for ordnance purposes have been readily supplied.

The firm of Thomas Firth & Sons, Limited, alone have during the last 4½ years supplied to ordnance manufacturers, including the English and various foreign Governments, Tubes for upward of 2800 Guns, varying in size from 100 tons downward, and they have hitherto never been unable to undertake any reasonable requirement. If you will pay a visit to Norfolk Works there will be such information placed at your disposal as will satisfy you, not only of the truth of what I say, but of the injustice done to the Steel manufacturers of Sheffield by the remarks made by you and reported in the newspapers.

If those who require the best Steel would remember that it can only be produced from the best material, manipulated by those of great experience in its manufacture, and that such Steel cannot be sold at the same price as inferior stuff made from cheap and common Iron, they would not fall into the error which some public departments as well as private purchasers do, by purchasing the latter under the false idea of "economy," and then, finding out its insufficiency for their purpose, they turn round and attempt to condemn the whole trade for inability to produce what is required.

Sheffield can, and does, produce the finest Steel in the world for all purposes, but it cannot be had for less than it is fairly worth.

Great mischief has been done, as you are aware, by the purchase of cheap and common Steel for purposes for which it is utterly unsuitable.

Referring to to these two letters and the general subject to which they relate, a "Steel Manufacturer" of Sheffield, addresses a communication to the Sheffield *Independent*, in which he says :

Two very interesting letters appeared in the *Independent* on Saturday last, one from Mr. John Wilson "on the character of the Sheffield manufacturers," the other from Mr. J. Rossiter Hoyle, relating to Steel and the Steel-makers of Sheffield. Mr. Wilson, concerned for the reputation of his native town, remarks on the damage done thereto by the use of inferior and often worthless Steel, and he quotes from a letter of a friend of his—a manufacturer in America—who complains that the Steel he gets from Sheffield "is not of the high standard it used to be." So much loss has he had in the use of it that he has become "alarmed." He has been finding "three dozen out of twelve dozen Chisels cracked in the hardening, though hardened by Sheffield men of experience." Well, now, I am sorry for this manufacturer. It is evident that he has been unfortunate in his choice of Steel-makers. Mr. Wilson could, I am sure, direct him to more than one firm of Steel manufacturers in Sheffield with whose productions he would have very different and much more satisfactory results. For Mr. Wilson's friend to base his opinions of the merits of Sheffield Steel on his own recent experience is certainly unfair to Sheffield. "Sheffield can," as Mr. Hoyle puts it, "and does produce the finest Steel in the world for all purposes, but it cannot be had for less than it is fairly worth." I fear it is only too true that a great deal of low-priced and worthless Steel is made up into Saws, Files, Cutlery, Tools, &c., resulting in what Mr. Wilson would call "cheap and nasty" articles being sent out, to the great damage, in reputation, of our town. I am glad to know, on the other hand, that we have in Sheffield numbers of manufacturers of Cutlery and Tools who will use only good Steel. In placing their orders they make it a first and imperative condition that they must have their Steel of the best quality it is possible to make. For this they are willing to pay a fair price, knowing that the best Steel can be made only from the best materials.

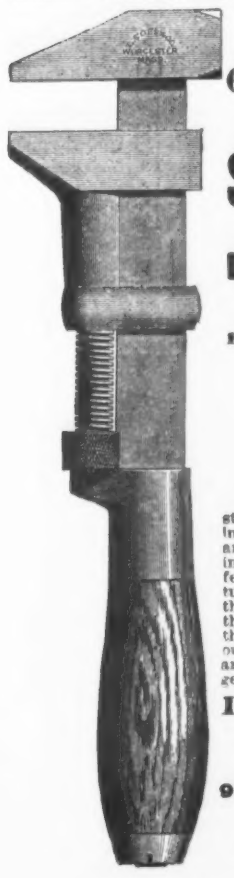
Mr. Hoyle says "great mischief has been done by the purchase of cheap and common Steel for purposes for which it is utterly unsuitable." In this Mr. Hoyle and Mr. Wilson are quite in agreement. The remedy is not far to seek. Let buyers pay a better price and they will get a better article.

Nor need Mr. Wilson fear that the higher grades of Steel cannot now be supplied as well as formerly. The best brands of Swedish Iron, such as "G L" and "Hoop L," are open to the purchase of any Steel manufacturers who will pay the price, and if buyers of Steel will go to respectable and practical makers for their supply, and will pay a fair price, they may get as good an article as ever

In a subsequent editorial in the Sheffield *Independent*, an extract from which we give below, it will be seen that some of the unpleasant facts with regard to the Sheffield Steel are acknowledged, and the manufacturers cautioned as to the danger to their reputation. Referring especially to Mr. Mappin's remarks, it goes on to say :

Now, only a very ignorant person would, in the face of recent events, talk about "the world believing that the Steel of Sheffield is matchless." Would that it were so; but, as the world happens to believe nothing of the kind, it is the sheerest folly to hide the uncomfortable fact under clouds of buncombe. Our readers have not forgotten the report of the American officers who visited the English Steel works, or the correspondence in our columns that followed the promulgation of that report. Statements similar to those of Mr. Rossiter Hoyle as to the capability of Sheffield to meet all Governmental requirements in heavy Gun Castings were then made; and they were met with contrary assertions as emphatic as those now made by Mr. Mappin, that Sheffield houses were unable to supply Steel for the largest Guns. Mr. Mappin accounts for this partly by the severity of the tests hitherto imposed, and he connects with this the increased reliance of the English Government on the resources of Woolwich. The earlier criticisms, it will be remembered, represented a foreign Government as taking steps to establish Steel works of its own. * * * * * * * But we imagine the fact to be that there is a little want of precision in terms, and somewhat different things are being spoken of by the disputants. Mr. Rossiter Hoyle speaks, we observe, of the Tubes for Guns that Messrs T. Firth and Sons have supplied, and he qualifies his assertion that "they have hitherto never been unable to undertake any requirement," with the judicious word "reasonable." That is a good and useful word. We need hardly say that the purchaser of goods may not unsuitably claim to be the judge of what is reasonable and what unreasonable—that is to say, of what will suit his purpose and what will not. And if he cannot get it in one place he is apt to go to another for it. However, we are less concerned as to the past than as to the future, and we rejoice to observe that Mr. Mappin admits that Sheffield will be able, we may hope before long, "to supply any reasonable demands for Steel Guns that may be made." For ourselves we have never lost faith in the enterprise of our townsmen, although it is sometimes a shade too slow to move.

What we have been saying above relates to the supply of Steel for large ordnance; but we hold that on the wider question it is an equally false conception of local patriotism to shriek "the Steel of Sheffield is matchless," and to abuse everybody who breathes a suggestion to the contrary. The true wisdom is not to trample on, but to listen to, all criticism, and honestly to find out whether it is well founded or not. Nobody doubts that Sheffield can "produce the finest Steel in the world"—the question is, does she? Does she, that is, not under special circumstances and at special prices, and when put upon her mettle for competition or testing, but in the ordinary course of business, and for those usual articles by whose quality the trade reputation of a place is made or marred? "Steel Manufacturer," in our columns on Tuesday, got out of the difficulty raised by Mr. John Wilson's letter (published last Saturday) too airily. He vouched for the statement that numbers of Sheffield manufacturers of Cutlery and Tools insist on excellent Steel, and will use no other. No prophet was needed to tell us this. It is what we should expect, and we wish the "numbers" were not only more numerous, but universal. That would be a prophet worth hearing who could deny the converse—that numbers of Sheffield manufacturers do not insist on the best Steel, and do not refuse to employ any other. But the difficulty of Mr. John Wilson's correspondent is not met by the off-hand remark that "he has been unfortunate in his choice of Steel-makers." "Steel Manufacturer" would not have said this if Mr. Wilson, instead of very properly omitting the name of the firm whose Steel was condemned by his correspondent, had published it. None would have been readier than "Steel Manufacturer" to say that the buyer could not have gone to a house with a higher reputation, and that going there he had every right to expect the best Steel Sheffield can make. This seems to us the serious part of such complaints. Nobody is surprised if cheap Steel or the Steel of firms without a name turns out to be rubbish. It is when high-priced Steel, supplied by firms whose names have been looked upon as a certain



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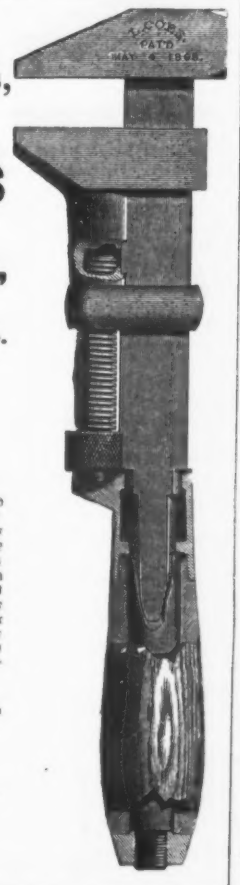

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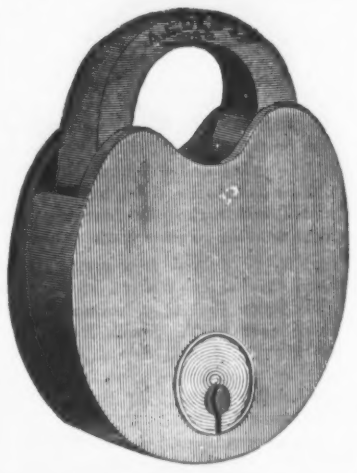
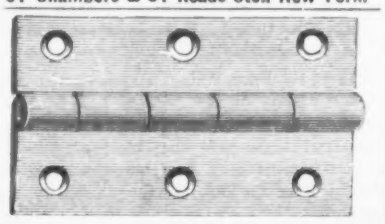


DURRIE & McCARTY, Agents,

97 Chambers & 81 Reade Sts., New York.



W. & J. TIEBOUT,

MANUFACTURERS OF

BRASS, GALVANIZED & SHIP CHANDLERY

HARDWARE,

Nos. 16 & 18 Chambers Street

NEW YORK.

FIELD'S

IMPROVED

FORCE PUMPS.

Latest, Cheapest and Best.

Household, Orchard and Well Force Pumps,

Pitcher Pumps,

Tube Well Pumps.

ECONOMY Garden Engine.

Send for Catalogue.

Field Force Pump Co.,

Lockport, N. Y.

ALWAYS GIVES THE UTMOST SATISFACTION.

Main Belting Co.,

Manufacturers of

THE LEVIATHAN

COTTON BELTING.

Unsurpassed for Strength, Durability and Cheapness.

Made to any Length, Width and Strength.

Main Driving Belts.

Guaranteed to Run Straight, Even Through out.

No Cross Joints, Unaffected by Damp. Clings well to the Pulley. Has no equal. In fact, is THE BELT.

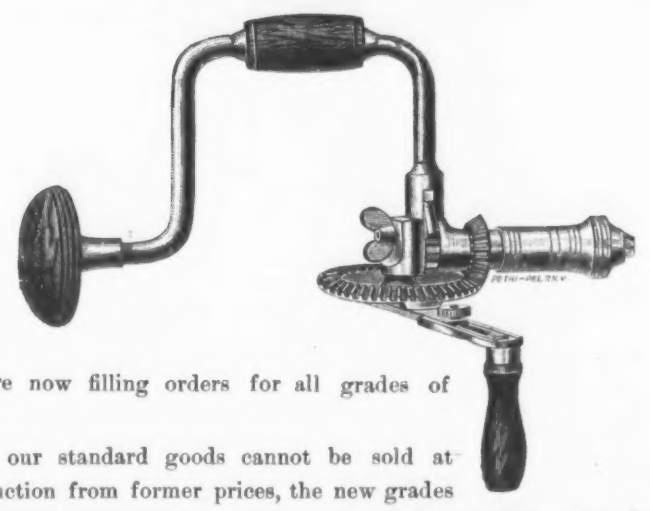
MAIN BELTING COMPANY,

S. W. cor. Ninth and Reed Sts., Philadelphia.

Also

248 East Randolph St., CHICAGO.

BARBER'S BIT BRACES.



We are now filling orders for all grades of Braces.

While our standard goods cannot be sold at much reduction from former prices, the new grades will be offered at market rates for goods of like quality. Our Braces are still covered by six good and valid patents, which have several years to run. Quotations on our full line will be furnished on request.

MILLERS FALLS CO.,

No. 74 CHAMBERS ST., NEW YORK.

CHAMPLAIN

Forged Horse Nails.

MANUFACTURED BY THE

NATIONAL HORSE NAIL CO.,

Vergennes, Vermont.

HOT FORGED AND COLD HAMMERED POINTED MADE OF BEST NORWAY IRON AND WARRANTED.

WAREHOUSE

97 CHAMBERS AND 81 READE STREETS NEW YORK.

DURRIE & McCARTY, Sole Agents.

H. B. SEIDEL, President. W. HASTINGS, Vice-Pres. and Gen'l Mgr. E. T. CANBY, Sec. and Treas.

THE SEIDEL & HASTINGS CO.,

WILMINGTON, DELAWARE,

New York Office, No. 90 John St.; Entrance on Gold St.,

MANUFACTURERS OF

BEST CHARCOAL BOILER PLATES,

AND PLATE IRON GENERALLY.

ALSO BEST QUALITY HOMOGENEOUS STEEL PLATES.

We ask the special attention of the trade to our **C. H. No. 1 Boiler Plates,** which we manufacture expressly for the **Shells** of Steam Boilers and stamp **50,000 pounds T. S.** when desired. **One hundred and sixteen tests** of this iron, made during the last three years by the **U. S. Inspectors of Steam Vessels,** show an **average tensile strength** of **58,808 pounds** to the sectional square inch, and an **average reduction of area** of the fractured section of **30½ per centum.** Our prices are as low as the production of a good article will admit of.

VARIETY IRON WORKS.

ALFRED C. REX & CO.,

Manufacturers of

PATENTED HARDWARE SPECIALTIES AND NOVELTIES.

MAIN OFFICE AND FACTORY:

FRANKFORD, PHILA.

BRANCH OFFICES:

126 Chambers St., New York, Chas. E. Spier, Mgr. and 415 Commerce St., Phila.

New Spring Specialties—King Egg Beaters, awarded medal at American Institute, New York; King Candle Lamp and Lantern cheapest combination ever made.

QUAKER CITY LAWN MOWER.

Guaranteed Superior to any other Center Cut MOWER ON THE MARKET.

THE QUAKER CITY Reduced in Price.

Now, why buy a worthless mower?

SEND FOR LIST.

Lloyd & Supplee Hdw. Co.,

Philadelphia.

DURRIE & McCARTY New York.

1885.

PENNSYLVANIA

LAWN MOWER.

Has no Equal, Surpassing all others, and pronounced **"THE BEST."**

New Price Lists will be ready about February 10th. Please write for same to

LLOYD & SUPPLEE HARDWARE CO., Philadelphia.
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R. A. CULTER & CO., Peoria, Ill.
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DAY BROS.'

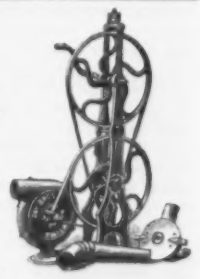
PORTABLE FORGES,

Fan Blowers, Tire Benders, etc.

All sizes. The most improved and handiest. Blacksmiths' Machines of all sorts.

Send for full particulars.

419 & 421 N. 2d St., PHILADELPHIA, PA.



PURE TURKISH EMERY.

WALPOLE EMERY MILLS

South Walpole, Mass.

guarantee of excellence, compares badly with the outcome of American crucibles that we decline to keep silent amid vain boastings that "the world believes that the Steel of Sheffield is matchless, and Sheffield is pardonably proud of the fact." It is not even yet too late to keep up the great name of our town, but it will not be done by exhibitions of the smug and complacent pride that goeth before destruction, or of the haughty spirit that precedes a fall.

PIECED TINWARE.

CENTRAL STAMPING COMPANY'S LIST FOR PIECED TINWARE, MARCH 1, 1885.

Asparagus Boilers.

Inches, 12; per doz $9.00
Apple Corers, per gross $5.10

Batter Kettles.

Quarts	4	6	8
Per doz	$4.00	5.25	7.00

Beer Measures.

	Rimmed. Tin Bottom.	Rimmed. Copper Bottom.
2 Quarts, per doz	$7.00	9.00
4 Quarts, per doz	10.50	12.50

Biscuit Cutters.

Inches	2½	3	3½
Per gross	$2.40	2.60	3.00

Cookey Cutters, Crinkle Edge.

Inches	3½	4¼
Per gross	$4.75	5.50

Doughnut Cutters, per gross $3.60

Cake Cutters.

	Oval. Plain Center.	Plain.	Fancy Center.	Extra Fancy Center.	Oak Leaf
Nos	0	1	2	3	4
Per gross	$2.60	2.60	3.40	3.75	5.50

Cake Cutters, Animal.

	Small.	Medium.	Large.
Nos	10	20	30
Per gross	$4.00	5.00	7.00

Coffee Boilers.

Quarts	1	1½	2	3	4
Tin Bottom, per doz	$1.50	1.70	1.90	2.25	2.65
Copper Bottom, per doz.			3.25	3.60	4.25

Quarts	6	8	10	12
Tin Bottom, per doz	3.30	5.65	9.00	11.00
Copper Bottom, per doz.	5.00	7.00	10.50	14.50

With Copper Pit or Flat Bottoms.

Inches	6	7	8	9
Per doz	$6.00	7.00	8.50	10.00

Coffee Pots.

Quarts	1	1½	2	3	4	6	8
Per doz	$1.40	1.60	1.80	2.15	2.50	3.15	5.50

Covered Buckets.

Quarts	½	1	2	3
Per doz	$0.75	0.95	1.10	1.50
With Black Handles			1.25	1.50

Quarts	4	6	8	10
Per doz	2.00	2.75	3.50	4.00
With Black Handles	1.65	2.15	2.90	

Quarts	12	14	16	20
Per doz	5.00	9.50	11.25	15.00

Covered Buckets, High.

Quarts	1	2	3
Per doz	$0.90	1.15	1.50

Canteens, Regulation Army, per doz $4.50

Canteen Trimmings, Regulation Army.

Per gross sets $18.00
Comprising 2 Sides, Nozzle and Cork, Boss and 3 Straps.

Cups.

Pints	½	1	Quart	1
Per gross	$3.00	4.50		7.50

Riveted and Wired.

Quarts	½ Small.	½	1	2
Per gross	$6.00	8.00	10.00	12.00

Colanders.

	Small.	Large.	Ex. Large.
Per doz., Tin Handle	$1.60	1.85	
Per doz., Iron Handle	1.70	2.00	7.50

Coffee Flasks.

Pints	1	1½	2
Per doz, Plain	$0.75	.80	.90
Per doz., Buffed	.90	1.00	1.10

Candle Molds.

Holes	4	6	8	12
Per doz. Stands	$2.25	3.25	4.25	6.50

Dinner Pails, Round.

	Small.	Large.	Ex. Large.
Per doz	$2.25	3.00	4.00

Dinner Pails, Oval, with Cup.

	Small.	Large.
Per doz	$6.00	7.25

Dinner Pails, Oblong, with Cup.

	Small.	Medium	Large.
Per doz	$6.75	8.25	9.75

	Providence.	Ladies'.
Dinner Pails, per doz	$3.00	3.00

Dinner Pails, Apartment.

Stories	3	4	5
Per doz	$5.25	6.00	8.00

Dish Kettles, Common.

Quarts	5	6	8	10	12	14	16
Per doz	$1.35	1.90	2.30	2.75	3.00	3.50	3.75

Dish Kettles, IX.

Quarts	10	12	16
Per doz	$4.00	4.50	5.25

Dutch Buckets.

Quarts	6	8	10	12
Per doz	$2.75	3.25	3.50	4.50

Dippers.

Pints	½	1	Quarts.	1	2	4
Per doz	$0.65	.70		.85	1.10	5.00

Dippers, Milk.

Pints	½	1	Quarts	1	2
Per doz	$1.75	2.25		2.75	5.00

Egg Whips.

	Small.	Large.
Black Handled, per gross	$7.80	9.00
Tin Handled, per gross	5.40	6.60
Egg Poachers, per doz		$1.20

	Tin Handle	Wood Handle.
Egg Slicers, per doz	$1.30	1.50

Farina Boilers.

Quarts	2	3	4	6	8	
Per doz	$4.25	5.00	5.75	6.75	8.75	

Farina Sauce Pans.

Quarts	2	3	4	6	8
Per doz	$4.50	5.25	6.00	7.00	9.00

Fish Kettles.

Nos	1	2	3
Inches	16	18	20
Each	$1.30	1.50	1.75

Funnels.

	Vial.	Pints.	½	1	2
Per doz	$0.25		.35	.45	.65

Hooped.

Quarts	2	4	5
Per doz	$1.00	1.50	4.00

Funnels, Grocers'.

Nos	1	2	3
Round, per doz	$1.75	2.00	2.25
Oval, per doz	2.00	2.50	3.00

Grates, Bread or Radish.

Sheet	¼	½	1
Per doz	$0.45	.65	1.15

Graters, Iron Frame.

Nos	1	2
Sheet	¼	½
Per doz	$0.75	1.30

Ice Cream Freezers, Common.

Quarts	2	4	6	8	12	16	20
Per doz	$6.00	8.75	10.25	12.00	15.50	18.50	24.00

Jelley Strainers.

Nos	1	2	3	4
Per doz	$2.75	3.00	4.00	5.25

Jelley Strainers, with Handles, per doz $3.00

Kerosene Cans.

Quarts	1	2	4	IX 4
Per doz	$1.80	2.15	2.75	3.50

Oil Cans, without Spouts.

Gallons	1	2	3	5	10
Per doz	$2.75	4.50	6.00	7.50	18.00

Lamp Fillers, Quarts	1	2
Per doz	$2.50	3.00

Liquor Pumps, with Iron Rods and Improved Valves, per doz $18.00
Liquor Suckers, per doz $3.50
Liquor Mixers, per doz $0.75
Mugs, Picnic, ½-Pint, per gross $5.00

Measures, Plain.

	Gill.	Pints.	½	1	2
Per doz	$0.35	.40	.55		.75

Measures, Lipped.

Pints	¼	½	1	Quarts.	1	2	4
Per doz	$0.45	.50	.65		.85	2.25	3.50

Measures, Heavy, Lipped.

Pints	¼	½	1	Quarts.	1	2	4
Per doz	$3.00	4.00	4.50		5.25	6.50	7.75

Set 6 pieces, per set, $2.60.

Measures, Heavy, Lipped.

Gallons	2	3	5
Each	$1.75	2.25	2.75

	Plain.	Lipped.
Measures, Graduated, Qts., per dz.	$0.75	.85

	Small.	Large
Marking Pots, per doz	$2.50	3.00

Milk Kettles.

	1	2	3	4	6
Per doz	$3.00	4.00	5.00	6.00	7.00

Bail or side handles.

	8	10	12	16	20
Per doz	$8.75	10.50	14.50	21.00	27.00

Milk Boilers.

Quarts	1	2	3	4
Per doz	$6.00	7.25	8.75	11.40

Muffin Rings.

Inches	2½	3	3½
Per gross	$2.00	2.25	2.50

Pans, Dish, IC.

Quarts	8	10	11	12	14	16
Per doz	$2 15	2.25	2.75	3.00	3.75	4.75

Pans, Dish, IX.

Quarts	10	11	12	14	16	20
Per doz	$3.00	3.50	4.25	5.50	6.50	10.00

Pans, Milk, Pieced.

Quarts	½	1	1½	2	3
Per doz	$0.70	.85	.90	1.05	1.25
Quarts	4	5	6	8	10
Per doz	$1.35	1.65	1.75	2.25	2.75
Per doz., IX			2.25	2.75	3.25

Pans, Milk, Pieced, Extra Deep.

3 quarts, per doz	$1.25

Pans, Fruit Cake.

	Small.	Medium.	Large.
Per doz	$1.30	1.50	1.80

Pans, Oval.

					Ex. deep.
Nos	1	2	3	4	1
Per doz	$1.50	2.00	2.25	2.75	1.50

Pans, Charlotte-Russe.

Nos	1	2	3	4	5
Per doz	$1.05	1.25	1.50	2.00	2.50

Pans, Spring Bottom.

Nos	1	2	3
Per doz	$6.75	7.75	8.75

Pans, Deep Bread.

	Small.	Medium.	Large.
Per doz	$1.25	1.50	1.75

Pans, One Sheet Bread.

	Wired edge.	Flat edge.
Per doz	$1.00	.65

Pans, Sponge Cake, Nos	1	2
Per doz	$1.25	1.50

Pans, Square Ringed.

Nos	1	2	3	4
Per doz	$1.50	1.80	2.25	2.75

Pans, All Square.

Nos	1	2	3
Per doz	$1.70	2.25	2.75

Pans, Common, Square, per doz	$0.75
Pans, Taffy, per doz	$0.90

Pans, Deep, Square and Oblong, IX, with Wire Handles.

8x10 10x14 9x12 11x16 11x11 12x12 13x13 14x14
Per doz ..... Prices on application.

Molds, Plain, Pudding.

Nos	1	2	3	4
Per doz	$4.25	4.75	5.25	7.75

Molds, Fluted, Rice.

Nos	1	2	3
Per doz	$8.75	10.75	12.00

Punch Kettles, Brewster's Patent (Copper Lined, High breast).

Nos	6	7	8
Each	$3.00	3.50	4.00

Punch Kettles, Copper Bottom.

Inches	6	7	8
Each	$1.75	2.00	2.25

Strainer Pails, Milk.

Quarts	6	10	14
Per doz	$3.75	5.75	6.50

Strainers, Milk, Wire Bottom.

	Small.	Large.
Per doz	$1.25	1.80

Strainers, Milk, Hooped.

	Small.	Large.
Per doz	$1.10	1.50

	Small.	Ex. Large.
Strainers, Soup, per doz	$1.30	2.30

Sauce Pans, Long Handle.

Quarts	½	1	2	3
Tin Bottom, per doz	$0.95	1.10	1.50	1.80
Copper Bottom, per doz				3.75

Quarts	4	6	8
Tin Bottom, per doz	2.25	3.00	4.50
Copper Bottom, per doz	4.50	5.50	7.00

Sauce Pans, Two Handle

Quarts	3	4	6	8	10
Tin Bottom, per doz	$2.25	2.75	3.75	4.50	5.25
Cop. Bottom, per doz	3.75	4.50	5.50	7.00	9.50

Stew Pans, Oyster.

Tin Bottom, per doz	$6.50
Copper Bottom, per doz	8.50

Scoops, Heavy.

Nos	1	2	3	4	5	6
Per doz	$2.50	3.00	3.50	4.00	5.00	6.50

Scoops, Ring Handle.

Nos	0	1	2
Per doz	$0.30	.35	.45

Steamers, Flat Covers.

Inches	6	7	8	9
Per doz	$2.60	3.00	3.50	4.00

Steamers, Pitched Covers.

Inches	6	7	8	9
Per doz	$3.00	3.50	4.00	4.75
Syllabub Churns, per doz				$3.00

Toddy Kettles.

Nos	1	2	3
Per doz	$4.50	5.00	5.50

Tea Steepers.

	Straight.	Flaring.	Black Handle.
Per doz	$1.25	1.40	1.60

Tea Pots, Octagon, Iron Handle.

Bowl Bottom, Plain Spouts.

Nos	10	20	30	40
Per gross	$15.50	19.10	22.35	25.60
Nos	50	60	70	80
Per gross	$27.60	32.50	35.00	40.60

Bowl Bottom, Fancy Spouts.

Nos	200	300	400	500	600	700	800
Per gross	$21.90	25.15	28.40	30.00	34.10	37.35	43.85

Flat Bottom, Plain Spouts.

Nos	020	030	040	050	060	070	080
Per gross	$17.00	21.10	23.50	26.00	30.00	34.10	37.35

Flat Bottom, Fancy Spouts.

Nos	2	3	4	5	6	7	8
Per gross	$21.00	24.35	26.80	27.60	31.65	35.75	40.60

Tea Kettles, Brewster's Patent.

Copper Lined, with Copper Spout Tinned.

Nos	6	7	8	9
Per doz	$16.50	18.00	19.50	21.00

Tea Kettles, Copper Pit or Flat Bottom.

High or Low Pattern.

Nos	5½	6	7	8	9
IX, per doz	$5.00	5.50	6.15	8.30	9.25
IXX, per doz		6.15	6.80	9.00	10.30

Tea Kettles, Flat Bottom.

Quarts	1	2	3	4
Tin Bottom, per doz	$2.75	3.50	4.00	4.50
Copper Bottom, per doz	3.50	4.25	5.00	5.75

Tea Kettles, Range, Copper Bottom.

Nos	1	2	3	4
Per doz	$8.50	10.00	11.50	13.00

Wash Boilers, Oval, Copper Oval Pit, Double Pit or Flat Bottom.

Inches	6	7	8	9	10
IX, per doz	$12.25	15.25	16.50	18.50	
IXX, per doz	13.75	16.75	18.50	21.00	27.50

In ordering, always state whether Pit Bottom, Double Pit or Flat Bottom Wash Boilers are required.

Wash Boilers, Oval Range, Copper Bottom.

Nos	1	2	3
Each	$2.00	2.50	3.00

Wash Boilers, Square Range, Copper Bottom.

Nos	1	2	3	3 high.
Each	$2.25	2.75	3.25	3.75

Wash Boilers, Oval, Flat Bottom.

	New England Pattern		
Inches	7	8	9
IX, per doz	$16.50	17.75	19.75
IXX, per doz	18.00	19.75	22.25

In ordering, always state whether IX or IXX Wash Boilers are required.

Wash Kettles.

Nos	1	2	3	4
IC, Common, per doz	$4.75	6.00	7.25	
Heavy, per doz	6.50	7.75	9.50	12.50
Copper Bottom, per doz	9.75	12.75	14.50	18.50

Wash Bowls, without Handle.

	Small.	Large.
Per doz	$1.50	2.00

Wash Bowls, with Handle.

Plain, per doz	$1.75	2.25
Copper Bottom, per doz	3.50	4.00

HARDWARE NOVELTIES.

Odorless Hollow-Ware.

The Hunter Sifter Company, 34 to 40 East Fifth street, Cincinnati, Ohio, have recently commenced the manufacture of what they call Safety Odorless Hollow-Ware, and which

Odorless Hollow-Ware.—Fig. 1.—Kettle with Inside Flue.

for the present they are introducing through the medium of canvassing agents. They propose ultimately to furnish these goods to the trade, but in the interval expect to have the country thoroughly canvassed by their agents in order to create a demand. The accompanying illustrations give an idea of the character of these goods. By reference to the first engraving it will be seen that there is an opening from near the top of the vessel, leading downward to the fire, through which all steam and disagreeable odors from the cooking, as well as any overflow from the vessel incident to boiling, are carried downward into the fire, the odors passing up the chimney. Accordingly, the steam that

Fig. 2.—Method of Securing Lid While Draining.

usually fills the kitchen, and to a greater or less extent penetrates the whole house, is avoided. The disagreeable smell of cooking is likewise overcome. Another feature is the shape of the bail, which is so arranged as to hold the cover in place, so that it cannot fall off while draining the water from the inside. How this is accomplished will be understood by examination of Fig. 2. The water is poured off through perforations in the cover, while the cooked food is retained in the kettle. The side bail, by a similar formation of the wire, is held away from contact with the vessel, so as not to become hot or scorched. The side and top bails give perfect control in pouring water or emptying contents. A steamer is also provided with these cooking vessels, and when it is placed in the body of the kettle the articles to be steamed are brought nearer to the heat, and consequently are cooked quicker than by the ordinary means. It is claimed that there is no obstruction in cleaning this ware more than is encountered in ordinary hollow-ware, and that the steamer is easily removed. Several different vessels are manufactured, among which may be mentioned the kettles shown in the engravings, and ham boilers and skillets, all embodying the same essential principles. They are made in different forms, adapting them for use upon ordinary coal or wood stoves and also upon oil stoves.

The Square-Hole Auger.

The Square-Hole Auger Company, Wooster, Ohio, are putting on the market a machine of novel performance, a general view of which is afforded by our illustration. It is described as a labor-saving machine constructed on a principle entirely new among carpenters' tools. In appearance it is similar to the common boring machines used by carpenters in framing. The power is applied in the same way, but in place of an auger there is used what is called a squaring tool, which is made in the following manner: To a driving-shaft extending through a metal stock there is attached a point which operates a raking cam; to this cam is fastened a two-edged knife which is provided at the ends with cutters, or saw teeth, sharpened on the inner side. These prevent the splitting of the wood at the ends of the cut. The knife, thus adjusted, cuts on both sides, from the center outward, by an oscillatory motion, and makes a square hole, with corners and sides cleanly and smoothly cut. The machine which is now being introduced is provided with a positive feed, and cuts a 2 x 2 inch hole. This may be enlarged in either direction by simply moving the machine from the first cut in the direction required. As may be seen by the engraving, the machine is adapted to cutting gains as well as mortises. The makers' claim for this machine is that it obviates the necessity of using either mallet or chisel, thereby saving the labor of at least two men. The manufacturers also claim that better work is accomplished with it than can be done with a round auger, mallet and chisel. The machine is so constructed that any auger can be used in it, as in an ordinary boring machine, by making the shank of the auger fit the socket where it is to be attached. It is stated that no more power is required to sink a square 2-inch hole with this machine than to bore a round hole of the same diameter in the ordinary manner. In cutting through a piece of timber there are no splinters or ragged edges on the under side. We understand that the company have in contemplation other sizes of stocks and knives, and will be able soon to furnish them ready to be attached by the operator to this machine.

New Mortising Tool, Made by the Square Hole Auger Co., Wooster, Ohio.

Arbitration in the Coal Mines of Western Pennsylvania.

The action of the coal miners in the vicinity of Pittsburgh, in striking against the award of the umpire, has placed in jeopardy the future of arbitration not only in that district, but in other sections of the country that had been encouraged to adopt this method of settling labor disputes. Arbitration in that district is the result of the demand of the miners, not the operators. They took the initiative in the formation of the trade tribunal which had been in operation nearly two years. The umpire was their own choice. One of the miners who has since been the most bitter against the award offered a resolution at the meeting of the tribunal, pledging both sides to abide by the decision of the umpire, whatever it might be. Notwithstanding this record, the miners as a body have taken action which, if successful, will destroy the hope of those who looked to the success of this principle as a means of preventing the industrial conflicts which are too common in that district. The most intelligent portion of the miners seem to realize that the rejection of the award is a mistake. The president and secretary of the miners' association at the conventions held repeatedly warned their constituents of the difficulties before them in the successful prosecution of a strike. Their warnings were unheeded, and the conventions, though they represented a minority of the district, ordered a strike and the majority has joined in it. At the present writing quite a number of pits in the district have refused to follow the lead of the conventions and are at work. Whether they will continue at work is as yet an unsettled question. The power of an earnest, determined and unscrupulous minority in such cases is very great, and they possibly may succeed in laying all the pits idle.

Whatever may be the result of the strike, arbitration will be at an end. The umpire's award is entirely in favor of the miners. Should the miners get their 3 cents a bushel, it will be without the scale; and should the operators succeed in having work continued at 2½ cents, it is hardly to be supposed that they will concede to the miners a scale against which the miners have struck and which is entirely in the interests of the latter. Indeed, quite a number of the operators were in favor of refusing the scale, but the action of some of the miners' representatives indicated that the miners themselves would refuse to abide by the scale, and the operators were willing that the onus of breaking it should fall upon the miners. Had this not been the outlook, it is more than probable that quite a number of the operators would have rejected it. The action of the miners cannot but be a source of the deepest regret to all who desire industrial peace. It was hoped that the success that had attended the workings of the trade tribunal in the coal mines in the Fifth Judicial District of West.

Boycotting.

It is a curious phase of human nature that beliefs and methods that have once been tried and condemned and abandoned will be widely accepted and extensively used if they present themselves in a slightly different aspect, or under a new name. Boycotting is only another phase of the old objection to improvements in machinery. It is another manifestation of the old folly. The new phase of this opposition is directed against the product of machinery and the result of new processes and those who sell or use them. The old boycotter called himself General Ludd and Mary Ann, and broke up the improved machinery or refused to work the improved process. The modern boycotter serves notices on tradesmen that they must refuse to sell certain brands of starch or advertise in certain papers. The old boycotter failed. Hosiery is made on power looms; the wood planer is in operation, notwithstanding the opposition of the carpenters; the sewing machine has brought blessings to hundreds of thousands of households, notwithstanding the opposition to its introduction. The modern boycotter has failed as signally. The steel nail which he has attempted to boycott is rapidly supplanting the iron nail; newspapers, against which he has uttered his anathemas have rapidly increased in circulation; and labor is beginning to learn the palpable lesson, taught a quarter of a century ago, that it is folly of the worst kind to oppose improvements that will result in reducing the cost of production of articles in general use.

The latest phase of boycotting is one of the most amusing of any of which we have yet heard. The coal miners in the neighborhood of McKeesport, in Pennsylvania, have called upon the community to boycott all merchants using natural gas, and it is also said that one of the operators in that neighborhood has concluded not to sell any coal to, or make any purchases of, any one who uses natural gas. This seems too absurd for belief, and yet, so far as the miners are concerned, it is their deliberate and formal action. The coal miners do not stop to realize that they are guilty of the same act that they condemn in others. The coal which they mine has in a large degree supplanted the work of the wood-chopper and the candle manufacturer. It is just as reasonable and sensible that the coal miner shall abandon his occupation and the country go back to using cord wood and dip candles as it is that they shall abandon the use of natural gas and consume only coal for heating and illuminating purposes.

Cost of Production and Profit on Gas.

The gas investigation has been going on in this city during the past week. Mr. Yalden, the expert who was appointed to examine the books of the Companies, has given elaborate tables covering a period of 10 years, showing the amount of gas produced, indexed and accounted for, its cost of production and distribution, receipts from consumers, repairs, profits from gas alone and from gas and residuals, and the basis on which the consolidated companies had come together. He reckoned capital from the books, assuming it to have been cash paid. It would have been necessary to go back much further than 10 years to determine just how the capital had been paid in. The following table is a summary from the expert's figures of items of the business of the companies forming the consolidation and of the Mutual Company. The net-profit column relates to gas only, the gross-profit column to residual sales also. All repairs, additions to plants and depreciation from use are included in the cost column. The column headed "Proportion of new stock to old" indicates at what the stock of the old companies was put into the consolidation. The Knickerbocker Company has a representative in the Consolidated Board of Direction, but was merged into the Municipal Company in 1880:

Companies.	Average receipts from consumers per 1000 feet.	Cost per 1000 feet of manufacturing and distribution.	Net profit from gas per 1000 feet.	Total profit per 1000 feet.	Proportion of new stock to old.
Manhattan	$2.25	$1.43	$0.82	$0.95	2.96½
Harlem	2.02	1.52	.45	.45	1.42
Mutual	2.29	1.10	1.09	1.08	.....
Municipal	2.19	1.16	1.02	1.30	1.58⅛
Metropolitan	2.18	1.33	.85	.89	2.60
New York	2.12	1.41	.72	.75	1.88
Knickerbocker	2.30	2.13	.96	.96	1.23½

The Knickerbocker Company's figures represent the sum received by that company from the pool to November, 1884.

The Pennsylvania Slate Trade.—The slate shipments of 1884 show a falling off as compared with the previous year. From the Slatington section for the year 1884 they were as follows: Roofing slate, 104,000 squares; school slate, 36,079 cases; flagging, 30,517 pieces, 1489 cases and 25 cars; blackboards, 4130 cases; mantels, 28 pieces and 19 cases; hearths, 33 cases; small slate and shaven slate, 11 cars. The wages paid per hour were: Splitters, 19 to 22 cents; block-makers, 18 to 20 cents; laborers, 12 to 15 cents. The total output of roofing slate from all the sections for 1884 was as follows: Bangor and Pen Argyle section, 194,545 squares; Slatington, 104,000 squares; Vermont, 85,000 squares; Maine, 41,000 squares; Chapman's, 29,499 squares; Peach Bottom, 10,000 squares; Virginia, 9000 squares; total, 474,004 squares. This, compared with the output in 1873, shows a reduction of over 42,000 squares, the production that year being the greatest for years. The prices during 1884 on board the cars at Slatington varied from $3.50 to $4 per square, depending on the size of the slate. One of the leading operators has been offered $3.25 per square for his total product, but it was declined, for the reason that better prices are confidently expected. There is very little slate imported, the importations last year numbering 437 packages, valued at $1886. The exports numbered 2,776,239 pieces, valued at $90,262. Our chief customer for slate is Australia, which took the bulk of the exportations.

Current Hardware Prices, March 18, 1885.

HARDWARE.

Anvils.
Eagle Anvils American.......... ℘ ℔ 10¢—dis 20 %
Wright's.......... 9½ @ 10¢
Armitage's Mouse Hole.......... 9¢
Armitage Mouse Hole, Extra.......... 11½¢
Trenton.......... 9¢
Wilkinson's.......... 9½¢@10¢
J. & Riley Carr, Patent Solid.......... 11@11½¢

Anvil Vise and Drill.
Millers Falls Co., $18.00.......... dis 20 %
Cheney Anvil and Vise.......... dis 25 %

Apple Parers.
Advance.......... ℘ doz $5.75
Champion.......... ℘ doz $8.25
Family Bay State.......... ℘ doz $12.00
Gem.......... ℘ doz $5.25
Gold Medal.......... ℘ doz $5.00—dis 10 %
Improved Bay State.......... ℘ doz $30.00
Improved Bay State, with push off.......... ℘ doz $33.00
Jersey.......... ℘ doz $7.50—dis 25 %
Little Star.......... ℘ doz $5.50
New Lightning.......... ℘ doz $7.00
Oriole.......... ℘ doz $7.50—dis 30 %
Penn.......... ℘ doz $5.50
Rocking Table.......... ℘ doz $7.00
Triumph.......... ℘ doz $5.50
Turntable, Original.......... ℘ doz $5.50
Turntable, Improved.......... ℘ doz $6.50
Waverly.......... ℘ doz $5.00—dis 10 %
White Mountain.......... ℘ doz $5.50
"1872".......... ℘ doz $4.50
"1876".......... ℘ doz $5.75
"1878".......... ℘ doz $7.00

Augers and Bits.
First Quality.......... dis 70 %
Snell's.......... dis 60@60&5 %
Cook's, Douglass Mfg. Co.......... dis 55 %
Cook's, New Haven Copper Co.......... dis 50&10 %
Ives' Circular Lip.......... dis 60 %
Patent Solid Head.......... dis 30 %
Lewis' Patent Single Twist.......... dis 45 %
Russell Jennings' Augers and Bits.......... dis 25 %
Imitation Jennings' Bits (old list).......... dis 60 %
Ives' "Jennings" Bits (old list).......... dis 50&10&5 %
Car Bits, Snell Mfg. Co.......... dis 40&10&10 %
Car Bits, New Haven Copper Co.......... dis 50&10 %
Snell Mfg. Co.'s Jennings' Bits (new list).......... dis 50&5 %
Expansive Bits, Clark's small, $18; l'ge, $26.. dis 33⅓@35%
Expansive Bits, Ives' No. 4, per doz., $60. dis 35@35&5 %
Expansive Bits, Blake's.......... $20—dis 40 %
Expansive Bits, Ansonia.......... dis 25 %
Hollow Augers, Ives' } dis 25&10 %
Hollow Augers, French, Swift & Co. }
Hollow Augers, Douglass' }
Hollow Augers, Bonney's Adjust. ℘ dz. $48.. dis 40&10 %
Hollow Augers, Stearns' Adjust. ℘ dz. $48—dis 20&10 %
Hollow Augers, Ives' Expansive, each $4.50. dis 45 @ 50 %
Hollow Augers, Univ'l Expan., each. $4.50—dis 30@40 %
Wood's.......... dis 25 %
Gimlet Bits.......... $7.50 ℘ gross, dis 50 %
Gimlet Bits, Diamond.......... ℘ doz. $1.10, dis 25&10 %
Gimlet Bits, "Bee".......... dis 25 %
Double Cut Gimlet Bits, Shepardson's.......... dis 45 %
Double Cut Gimlet Bits, Ct. Valley Mfg. Co.. dis 30&10 %
Double Cut Gimlet Bits, Hartwell's.......... dis 60 %
Double Cut Gimlet Bits, Douglass'.......... dis 40 %
Double Cut Gimlet Bits, Ives'.......... dis 50 %
Holtz Bit Stock Drills.......... dis 25&10 %
Syracuse Twist Drill Co., Wood Drills.......... dis 30 %
L'Hommedieu's Ship Augers.......... dis 15 @ 20 %
Watrous's Ship Augers.......... dis 15 @ 20 %
Snell's Ship Augers.......... dis 15 @ 20 %
Snell's Ship Auger Pattern Car Bits.......... dis 15 @ 20 %

Awl Hafts.
Sewing, Brass Ferrule.... $3.50 ℘ gross—dis 40&10 %
Patent Sewing, Short.......... $1.00 ℘ doz—dis 40&10 %
Patent Sewing, Long.......... $1.20 ℘ doz.—net
Patent Peg, Plain Top.. $10.00 ℘ gross—dis 40&10&5 %
Patent Peg, Leather Top. $12.00 ℘ gross—dis 40&10&5 %

Awls, Brad Sets, &c.
Awls, Sewing, Common.......... ℘ gross $1.70—dis 35 %
Awls, Shouldered Peg.......... ℘ gross $2.45—dis 40 %
Awls, Patent Peg.......... ℘ gross 63¢—dis 40 %
Awls, Shouldered Brad.......... $2.70 ℘ gross—dis 35 %
Awls, Handled Brad.......... $7.50 ℘ gross—dis 45 %
Awls, Handled Scratch.......... $7.50 ℘ gross—dis 35&10 %
Awls, Socket Scratch.......... $1.50 ℘ doz—dis 25 @ 30 %
Aiken's Sets, Awls & Tools... ℘ doz. $10.00—dis 50&10 %
Millers Falls Adj. Tool Handles.......... ℘ doz $12—dis 25 %
Fray's Adj. Tool Handles, No. 1.......... ℘ doz $12—dis 25 %
Fray's Adj. Tool Handles, No. 2.......... ℘ doz $18—dis 25 %
Brad Sets, No. 42, $10.50; No. 43, $12.50.. dis 70&10&5 %
Brad Sets, Stanley's Excelsior, No. 1, $7.50. }
Brad Sets, Stanley's Excelsior, No. 2, $4.00. } dis 25&10 %
Brad Sets, Stanley's Excelsior, No. 3, $5.50. }

Axes.—Best grades.......... ℘ doz $6.50 @ $7
Good Seconds.......... $5.50 @ $6

Axle Grease.
Frazer's, in bulk.......... Keg ℘ ℔, 5¢; Pail, ℘ ℔, 6¢ net
Frazer's, in boxes.......... ℘ gross $10.00 net

Axles.—Common.......... ℘ ℔, 3¼@3¾¢
Fine Axles, 1¼ in. and under.......... dis 60&5 @ 60&10 %
Fine Axles, over 1¼ in.......... 5 @ 5¼¢ ℘ ℔

Bag Holders.
Sprengle's Pat., ℘ doz $18.......... dis 60 %

Balances.
Spring Balances.......... dis 40&10 %

Bells.
Hand, Light Brass.......... dis 75&10&10 %
Hand, Extra Heavy.......... dis 60@65 %
Hand, White Metal.......... dis 70 %
Hand, Silver Chime.......... dis 25&10 %
Hand Globe (Cone's Patent).......... dis 25&10 %
Gong, Abbe's.......... dis 25&10 %
Gong, Yankee.......... dis 40&10 %
Gong, Barton's.......... dis 40&10 %
Crank, Taylor's.......... dis 25&10 %
Crank, Brooks'.......... dis 50&10&2 %
Crank, Cone's.......... dis 10 %
Crank, Connel's.......... dis 20&10 %
Lever, Sargent's.......... dis 60&10 %
Lever, Taylor's Bronzed or Plated.......... net
Lever, Taylor's Japanned.......... dis 25&10 %
Lever, R. E. M. Co.'s.......... dis 50&10&2 %
Pull, Brook's.......... dis 50&10&2 %
Pull, Western.......... dis 25&10 %
Call.......... dis 40 %
Cow, Common Wrought.......... dis 60&10 %
Cow, Western.......... dis 20&10 %
Cow, Western, Sargent's list.......... dis 70&10 %
Cow, Kentucky "Star".......... dis 20&10 %
Cow, Kentucky, Sargent's list.......... dis 70&10 %
Cow, Dodge, Genuine Kentucky, new list—

Nos.	1	1½	2	3	4	5	6	7	Hog	
	$10.00	9.00	8.00	6.00	5.00	4.00	3.00	2.50	5.00	dis 70 %

Cow, Texas Star.......... dis 50 %
Farm Bells.......... ℘ ℔, 3¼¢.
Steel Alloy Church and School Bells.......... dis 40 %

Bellows.
Blacksmiths'.......... dis 50@50&10 %
Molders'.......... dis 40@40&10 %
Hand Bellows.......... dis 40@40&10 %

Belting, Rubber.—Standard.......... dis 70@70&5 %
Extra.......... dis 60@60&10 %
N. Y. Belting & Packing Co., Standard.......... dis 50&10 %
N. Y. Belting & Packing Co., Extra Standard.. dis 50 %
Cleveland Rubber Co., Extra Standard.... dis 60&10 %

Bench Stops.—Hotchkiss's ... ℘ doz $5.00—dis 10 %
Weston's...... per doz No. 1, $10; No. 2, $9—dis 25&10 %
McGill's.......... ℘ doz $3—dis 10 %
Morrill's.......... ℘ doz $7.50—dis 40&5 %

Bit Holders.
Extension, Barber's.......... ℘ doz $15.00—dis 40&5 %
Extension, Ives'.......... ℘ doz $20.00—dis 40&10 %
Diagonal.......... ℘ doz $24.00—dis 40 %
Angular.......... ℘ doz $24.00—dis 40&5 %

Blind Adjusters.
Domestic.......... ℘ per doz $3.00—dis 30 %
Excelsior.......... ℘ doz $16.00—dis 50&10&2 %

Blind Fasteners.
Mackrell's.......... ℘ doz pairs, $1.00—dis 20&10 %
Van Sand's Screw Pattern.......... $9 ℘ gro.—dis 20 %
Van Sand's Old Pattern.......... $9 ℘ gro.—dis 20 %
Washburn's Old Pattern.......... $9 ℘ gro. net
Merriman's.......... new list, net
Salisbury & Austin No. 2008.......... $9 ℘ gro. net
Security Gravity.......... $9 ℘ gro. net

Blind Staples.
Barbed, ½ in. and larger.......... ℘ ℔ 8 @ 8½¢ net
Barbed, ⅜ in.......... ℘ ℔ 10 @ 10½ ¢net

Blocks.
Tackle Blocks, &c.......... dis 40&10 @ 40&10&10 %
Tackle Blocks, T. Laughlin & Son.......... dis 50&10 %
Reed Mfg. Co. Self-Lubricating.......... dis 50 %

Bolts.
Cast Iron Barrel, Square, &c.......... dis 60&10&10 @ 70 %
Cast Iron Shutter Bolts.......... dis 60&10&10 @ 70 %
Cast Iron Chain (Sargent's list).... dis 60&10&10 @ 70 %
Ives' Patent Door Bolts.......... dis 55&10 %
Wrought Barrel.......... dis 60&10 @ 70 %
Wrought Square.......... dis 60&10 @ 70 %
Wr't Shutter, all Iron, Stanley's list.. dis 50&10&10&5 %
Wr't Shutter, Brass Knob, Stanley's.. dis 25&10&10&5 %
Wrought Shutter, Sargent's list.......... dis 60&10&5 %
Wrought Sunk Flush, Sargent's.......... dis 60&10&5 %
Wrought Sunk Flush, Stanley's.......... dis 40&10&5 %
Wrought B. K. Flush, Com'n Stanley's.......... dis 55 %
Tire, Common, list Feb. 28, 1883.......... dis 70 @ 70&10 %
Carriage, Com., list June 10, '84.......... dis 80 @ 80&5 %
Carriage, Philadelphia.......... dis 75&10 %
Carriage, Philadelphia pattern.......... dis 75&10@80 %
R. B. & W., Carriage, old list.......... dis 70&5 %
Tire, Norway, Phil., list Oct. 16, '84.......... dis 80 %
Tire, Eagle, Phil., list Oct. 16, '84.......... dis 82½ %
Tire, R. B. & W., Philadelphia list Oct. 16, 1884. dis 80 %
Stove.......... dis 65@65&5 %
Plow.......... dis 60 %
Plow, R. B. & W.......... dis 50 %
Machine.......... dis 80 %
Bolt Ends.......... dis 80 %

Borax........... 10¢ ℘ ℔ net

Boring Machines.

	Upright.	Angular.	
First quality, no Augers..	$5.50	$6.75	dis 50&5 %
Phillips, with Augers......	7.00	7.50	net
Jennings & Co., no Augers.	5.50	6.75	dis 45 %
Snell's..........	5.50	6.75	dis 40&10&10%
Saunders' Pat., Reg. Bed..	6.00	—	dis 20 %
Saunders' Pat., Extra Bed..	6.50	—	dis 20 %
Hubbard's..........	2.50	3.00	net

Bow Pins.
Humason, Beckley & Co.'s, Nos 1 and 2.... dis 60&10 %
Humason, Beckley & Co.'s other Nos.......... dis 70 %
Sargent & Co.'s.......... $17 and $18, dis 60&10 %
Hotchkiss.......... dis 30 %
Peck, Stow & W. Co.......... dis 50&10 %

Braces.
Q. S. Backus.......... dis 50&10 @ 50&10&10 %
Barber's.......... dis 40&5 @ 40&10 %
Barber's, old style.......... dis 50 %
Spofford's Patent.......... dis 50&10 @ 60 %
Ives' Patent Braces.......... dis 55&10 %
Common Ball, American.......... dis 55 @ 55&10 %
Amidon's.......... dis 50 @ 50&5 %
Bartholomew's, Nos. 25, 27, 30... dis 50&5 @ 50&10&5 %
Bartholomew's, Nos. 117, 118, 119... dis 60&5 @ 60&10 %
Barker's Imp'd.......... dis 60 @ 60&5 %
Amidon's Corner Brace.......... dis 30&10 @ 40&5 %
Universal.......... dis 55 %
Empire.......... dis 30 %
Buffalo Ball.......... dis 40 %

Brackets.
Shelf, plain, Sargent's list.......... dis 60&10 %
Shelf, fancy, Sargent's list.......... dis 60&10&10 %
Reading, plain.......... dis 60&10&5 %
Reading, Rosette.......... dis 66⅔&10 %

Bright Wire Goods.
List of June 25, 1883..... dis 70&10&10@70&10&10&10 %

Broilers.—Henis' Self-Basting.

Inch..........	9	10	9 x 11
Per doz..........	$4.50	5.50	6.50

Bull Rings.
Union Nut Co.......... dis 55 %
Sargent's.......... dis 66⅔&10 %
Hotchkiss' low list.......... dis 30 %
Humason, Beckley & Co.'s.......... dis 70&10 %
Peck, Stow & W. Co.'s.......... dis 50&10 %

Butts.
Wrought Brass.......... dis 80 @ 80&5 %
Cast Brass, Tiebout's.......... dis 40 %
Cast Brass, Corbin's Fast Joint.......... dis 20&10 %
Cast Brass, Loose Joint.......... dis 10&10 %
Fast Joint, Narrow.......... dis 60&10 @ 60&10&5 %
Fast Joint, Broad.......... dis 60&10 @ 60&10&5 %
Loose Joint.......... dis 70&10 @ 70&10&5 %
Loose Joint, Japanned.......... dis 70&10 @ 70&10&5 %
Loose Joint, Jap. with Acorns.. dis 70&10 @ 70&10&5 %
Parliament Butts.......... dis 70&10 @ 70&10&5 %
Mayer's Hinges.......... dis 70&10 @ 70&10&5 %
Loose Pin, Acorns.......... dis 70&10 @ 70&10&5 %
Loose Pin, Acorns, Japanned... dis 70&10 @ 70&10&5 %
Loose Pin, Acorns, Jap, Pltd. Tips. dis 70&10@70&10&5 %

WROUGHT IRON.

Fast Joint, Narrow.......... dis 60&5&10@60&7½&10 %
Fast Joint, Lt. Narrow.......... dis 60&5&10@60&7½&10 %
Fast Joint, Broad.......... dis 60&5&10@60&7½&10 %
Loose Joint, Broad...... dis 60&10&10@60&10&10&2½ %
Table Butts, Back Flaps, &c.. dis 60&5&10@60&7½&10 %
Inside Blind, Regular.......... dis 60&5&10@60&7½&10 %
Inside Blind, Light.......... dis 60&5&10@60&7½&10 %
Loose Pin, Wrt.......... dis 60&10&10@60&10&10&2½ %
Loose Pin, Light.......... dis 60&5&10@60&7½&10 %
Bronzed Wrought Butts.......... dis 45&5@45&10 %
Spring Hinges:
Geer's Spring and Blank Butts.......... dis 33⅓ %
Union Spiral Spring, Japanned.......... dis 25 %
Union Spring Hinge Co.'s.......... dis 25 %
American Spring Hinge Co.'s.......... dis 30 %
Gem Spring Hinges.......... dis 30 %
Barker's Double Acting.......... dis 20&10 %
Union Mfg. Co.......... dis 25 %
Bommer's.......... dis 25 %
Buckman's.......... dis 25 %
Empire.......... dis 60&10 %
Acme.......... dis 70 %
Climax.......... dis 50&10 %
Chicago.......... dis 30 @ 30&10 %
Blind Butts, Parker.......... dis 75&2 %
Blind Butts, Palmer.......... dis 50&5&10 %
Blind Butts, Seymour.......... dis 70&2 %
Blind Butts, Lull & Porter.......... dis 80&10 %
Blind Butts, Nicholson.......... dis 45&10 %
Blind Butts, Huffer.......... dis 50 %
Blind Butts, Clark's, Nos. 1, 3, 5.......... dis 80 %
Blind Butts, Manhattan Hardware Co.......... dis
Blind Butts, Sargent's, Nos. 1, 3.......... dis 75&10 %
Blind Butts, Sargent's, No. 12.......... dis 75&10&10 %
Blind Butts, Reading's Gravity.......... dis 75&10 %
Blind Butts, Shepard's "Noiseless," Nos. 50, 60, 65, 45 and 55.......... dis 75&10&5 @ 80 %
Blind Butts, Shepard's Champion Gravity, No. 75.......... dis 80&10 %
Blind Butts, Shepard's "Gravity," Nos. 1, 3 and 5.......... dis 80 @ 80&5 %
North's Automatic Blind Fixtures, No. 2, for Wood, $9; No. 3, for Brick, $10.50.
Shepard's "O. S." and "Acme" Lull & Porter.......... dis 75&10&5 %
Shepard's "Queen City" Reversible..... dis 75&10&5 %
Clark's Improved Shutter Hinge, Nos. 0, 1, 1½, 2, 2½, 3.......... dis 70 %

Butcher's Cleavers.
Humason & Beckley Mfg. Co.......... dis 30 %
Bradley's.......... dis 25 %
Beatty's.......... dis 33⅓&5 %

1	2	3	4	5	6	7	8
$16.50	19.00	21.50	24.00	27.00	30.00	33.50	36.50

New Haven Edge Tool Co.'s.......... dis 40 %

Calipers........... See Compasses

Can Openers.
Messenger's Comet.......... ℘ doz $3.00, dis 25 %
American.......... ℘ gross $6.00, dis 30 %
Duplex.......... ℘ doz 25¢, dis 15 @ 20 %
Lyman's.......... ℘ doz $3.75, dis 20 %
No. 4, French.......... ℘ doz $2.25, dis 55 %
No. 5, Iron handle.......... ℘ gross $6.00, dis 45 %
Eureka.......... ℘ doz $2.50, dis 10 %
Sardine Scissors.......... ℘ doz $7.00, dis 55 %
Star.......... ℘ doz $5.00, dis 25&5 %
Sprague, No. 1, $2; No. 2, $2.25; No. 3, $2.50. dis 50&10 %
"World's Best," ℘ gross, No. 1, $12.00; No. 2, $24.00; No. 3, $36.00.......... dis 50&10 %
Universal.......... ℘ doz $3.00, dis 35&5 %
Domestic.......... ℘ doz $2.50, dis 45 %
Champion.......... ℘ doz $2.00, dis 50 %

Caps—Percussion. ℘ 1000.
Hicks & Goldmark's
F. L. Waterproof, 1-10's.......... 50¢ }
E. B. Trimmed Edge, 1-10's.......... 65¢ } ..dis 25 %
E. B. Ground Edge, Central Fire, 1-10's. 70¢ }
Double Waterproof, 1-10's.......... $1.40 }
Musket Waterproof, 1-10's.......... 50¢
G. D.......... 28¢
S. B.......... 30¢
S. B. Genuine Imported.......... 45¢
Eley's R. B.......... 56¢
Eley's D Waterproof, Central Fire.......... $1.60
U. M. C., F. C. Trimmed.......... 50¢ }
U. M. C., F. L. Ground.......... 70¢ }
U. M. C., Cen. Fire Ground.......... 70¢ } ..dis 25 %
U. M. C., Double Waterproof.......... $1.40 }
Double Waterproof, in 1-10's.......... 1.40 }
Musket, in 1-10'.......... 50¢

Cartridges.
Rim.......... List of Jan. 1, 1884—dis 50&10@60 %
Central Fire.......... " " " dis 33⅓@40 %
Brass and Paper Shells.......... dis 20 @ 25 %
Kelsey, Brass Shells, 1st quality.......... ℘ 100 $3.25
Kelsey, Brass Shells, 2d quality.......... ℘ 100 $2.75
Kelsey, Paper Shells, No. 10, 1st quality... ℘ 1000 $4.50
Kelsey, Paper Shells, No. 12, 1st quality... ℘ 1000 $4.00
Kelsey, Paper Shells, No. 10, 2d quality... ℘ 1000 $4.00
Kelsey, Paper Shells, No. 12, 2d quality... ℘ 1000 $3.75

Cards.
Horse and Curry.......... dis 10 @ 10&10 %
Cotton.......... New list, Aug., 1883, dis 10 %
Wool.......... " " " dis 10 %

Carpet Stretchers.
Cast Steel, Polished.......... ℘ doz $5.00, dis 30 %
Cast Iron, Steel Points.......... ℘ doz $1.00, dis 15 %
Socket.......... ℘ doz $2.50, dis 25 %
Bullard's.......... dis 25 %

Carpet Sweepers.
Bissell No. 5.......... ℘ doz $17.00
Bissell No. 7 New Drop Pan.......... ℘ doz $19.00
Bissell No. 12 Hall Sweeper.......... ℘ doz $42.00
Mystic.......... ℘ doz $17.00
Cottage.......... ℘ doz $15.00
Garland.......... ℘ doz $19.00
Queen.......... ℘ doz $16.00
Queen, with band.......... ℘ doz $18.00
King.......... ℘ doz $30.00

Casters.
Bed.......... } dis
Plate.......... } 60&10 %
Shallow Socket.......... }
Deep Socket.......... dis 45 %
Yale Casters, reduced list May, 1884.... dis 25@25&10 %
Martin's Patent (Phœnix).......... dis 40&10 %
Payson's Anti friction.......... dis 60 %
"Giant" Truck Casters.......... dis 10 %
Stationary Truck Casters.......... dis 45&10

Cattle Leaders.
Humason, Beckley & Co.'s.......... dis 75 %
Sargent's.......... dis 66⅔&10 %
Hotchkiss.......... dis 30 %
Peck, Stow & W. Co.......... dis 50&10 %

Chain.
Trace, 6½-10-2.......... ℘ pair 79¢ }
Trace, 6½-10-3.......... ℘ pair 70¢ } dis 50&10 @ 60 %
Trace, 7-10-2.......... ℘ pair 86¢ }
German Halter Chain, list of June, 1884..... dis 55&5 %
German Coil, list of June, 1881.......... dis 55&5 %

English Coil.......	3-16	¼	5-16	⅜	7-16	½
	$0.09	.07	.06	.05½	.05	.04¾
American Coil.....	3-16	¼	5-16	⅜	7-16	½
	$0.8½	.06¼	.05½	.04¾	.04½	.043

Covert Halter, Hitching and Breast.......... dis 35&5 %
Meneely's Breast, Halter and Hitching..... dis 50&10 %
Oneida Halter Chain (old list).......... dis 45 %
Galvanized Pump Chain.......... ℘ ℔ 6¢ @ 6½¢
Jack Chain, Iron.......... dis 70&5 @ 70&10 %
Jack Chain, Brass.......... dis 65&10 @ 70 %

Chalk.
White.......... ℘ gro 55¢
Red.......... ℘ gro 65¢
Blue.......... ℘ gro 90¢
White Crayons.......... ℘ gro 12¢ @ 13¢

Chalk Lines.—See Lines.

Chisels.
Socket Framing, Firmer, &c.......... dis 75@75&10 %
Socket Framing and Firmer, Buck Bros.......... dis 30 %
Socket Framing and Firmer, Merrill.......... dis 65&10 %
Socket Firmer, Framing, &c., L. & I. J. White.. dis 25&5 %
Socket Framing Firmer, &c., Crossman..... dis 65&5 %
Tanged Firmers.......... dis 45&5@50 %
Tanged Firmers, Butcher's.......... $4.75 @ $5.00
Tanged Firmers, Spear & Jackson's.......... $5.00 to £
Tanged Firmers, Buck Bros.......... dis 30 %

Clamps.
Iron, Providence Tool Co.'s Wrought Iron...... dis 25 %
Iron, Adjustable, Gray's.......... dis 20 %
Iron, Adjustable, Lambert's.......... dis 20 %
Iron, Adjustable, Snow's.......... dis 40&5 %
Iron, Adjustable, Hammer's.......... dis 15 %
Iron, Adjustable, Stearns'.......... dis 20&10 %
Iron, Cabinet, Sargent's.......... dis 70&10 %
Iron, Carriage Makers', Sargent's.......... dis 65&10&10 %
Iron, Ebernard Mfg. Co.......... dis 40&5 @ 40&10 %
Saw Clamps.......... See Vises

Clips, Axle.
Norway or Best.......... dis 60&10 %
Superior.......... dis 70&10 %

Coal Vases.
Buffalo Palace, S. S. & Co.......... dis 30&10 %
Buffalo Common, S. S. & Co.......... dis 30&10 %

Cockeyes........... dis 50 %

Cocks, Brass.
Racking.......... dis 65&5 %
Globe.......... dis 65&5 %
Plain Bibbs.......... dis 60&5 %
Ale and Beer.......... dis 60&5 %

Coffee Mills.
Board and Box.......... dis 40&10&2 %
Selsor's Patent.......... $9.50, $10.50, dis 25 %
American, Enterprise Mfg. Co.......... dis 20&10 %
The "Swift," Lane Bros.......... dis 20&10 %
Webb's Patent.......... dis 45 %

Compasses, Dividers, &c.
Compasses.......... dis 60&10&10 %
Calipers.......... dis 60&10&10 %
Dividers.......... dis 60&10&10 %
Bemis & Call Co.'s Dividers.......... dis 60&5 %
Bemis & Call Co.'s Compasses & Calipers.... dis 50&5 %
Bemis & Call Co.'s Wing & Inside or Outside. dis 50&5 %
Bemis & Call Co.'s Double.......... dis 60 %
Bemis & Call Co.'s (Call's Patent Inside).......... dis 30 %
Excelsior.......... dis 50 %
Cook's Extension.......... dis 25 %
J. Stevens & Co.'s Calipers and Dividers.... dis 25&10 %

Coopers' Tools.
Bradley's.......... dis 20 %
Barton's.......... dis 25 %
L. & I. J. White.......... dis 20&5 %
Albertson Mfg. Co.......... dis 25 %
John Beatty & Co.......... dis 33⅓ %

Corkscrews.
Humason & Beckley Mfg. Co.......... dis 40 %
Clough's Patent.......... dis 33⅓ @ 33⅓&5 %

Corn Knives and Cutters.
Bradley's.......... dis 10 %
Wadsworth's.......... dis 25 %

Cradles.
Grain.......... dis 40&5 %

Crow Bars.
Cast Steel.......... ℘ ℔ 4¢
Iron, Steel Points.......... ℘ ℔ 3¾¢

Curry Combs.
Fitch's.......... dis 50&10 %
Hotchkiss, Novelty, new list, July, 1880...... dis 33⅓ %
Hotchkiss, Excelsior Supr. Champion.......... dis 33⅓ %
Rubber.......... ℘ doz $10.00, dis 25 @ 30 %

Curtain Pins.
Silvered Glass.......... net
White Enamel.......... net

Cutlery.
American Pocket.......... Net prices
American Table.......... Net prices
Wostenholme.......... $7.75 @ $8.00 to £

Dividers........... See Compasses

Dog Collars.
Embossed Gilt, Pope & Stevens' list.......... dis 30&10 %
Leather, Pope & Stevens' list.......... dis 40 %
Brass, Pope & Stevens' list.......... dis 40 %

Door Springs.
Torrey's Rod, regular size.......... ℘ doz $3, dis 50 %
Gray's.......... ℘ gro, $20.00, dis 20 %
Bee Rod.......... ℘ gro, $20.00, dis 20 %
Warner's No. 1, ℘ doz, $2.50; No. 2, $3.30.... dis 40&10 %
Gem (Coil):
No. 1, Large Japanned.......... ℘ doz $4.00 }
No. 2, Medium, Japanned.......... ℘ doz 2.75 } dis 50&10 %
No. 3, Small, Japanned.......... ℘ doz 2.00 }
Star (Coil)—For Cop'd, Nickel-Plated, &c., see list.
No. 4, ("Shoo Fly") Screen Door size, ℘ doz $1.50 }
No. 5, Screen Door size.......... ℘ doz 2.00 } dis
No. 6, Medium.......... ℘ doz 2.75 } 60 %
No. 7, Large.......... ℘ doz 4.00 }
Victor (Coil).......... dis 50&10&10 %
Champion (Coil).......... dis 50&10 @ 50&10&10 %
Philadelphia.......... 5 in., $5.00; 8 in., $7.75, dis 35 %
Cowell's...... No. 1, ℘ doz $18.00; No. 2, $15.00, dis 50 %
Rubber, complete.......... ℘ doz $2.25, dis 20&10 %
Hercules.......... dis 50 %
Shaw Door Check and Spring.......... dis 25 @ 30 @ 35 %
Elliott's Door Check and Spring.......... dis 25 %

Drawing Knives........... dis 75@75&10 %
Douglass & Witherby.......... dis 70&10 @ 70&10&10 %
Merrill.......... dis 65&10 %
Watrous.......... dis 20 %
L. & I. J. White.......... dis 20&5 %
Bradley's.......... dis 35 %
Adjustable Handle.......... dis 20@20&5 %

Drills and Drill Stocks.
Blacksmiths'.......... each, $1.60 @ $1.75
Blacksmiths' Self-Feeding.......... each, $7.50, dis 20 %
Breast, P. S. & W.......... dis 45&10 %
Breast, Hotchkiss'.......... dis 20 %
Breast, Wilson's.......... dis 30&5 %
Breast, Millers Falls.......... each, $3.00 dis 25 %
Breast, Bartholomew's.......... each, $2.50, dis 25&10 %
Ratchet, Merrill's.......... dis 20 %
Ratchet, Ingersoll's.......... dis 25 %
Ratchet, Whitney's.......... dis 20&10 %
Ratchet, Weston's.......... dis 20 %
Ratchet, Moore's Triple Action.......... dis 25@30 %
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.......... dis 20&10 %
Wilson's Drill Stocks.......... dis 10 %
Automatic Boring Tools.......... each, $2.25, dis 20 %

Drill Chucks.
Morse's Beach Patent.......... each, $8.00, dis 20 @ 20&5 %
Morse's Adjustable.......... each, $7.00, dis 20 @ 20&5 %
Danbury.......... each, $8.00, dis 30 @ 30&5 %

Dripping Pans.
Buffalo, S. S. & Co.......... ℘ ℔, 5½¢

Egg Beaters.
Dover.......... ℘ doz $2.50
National.......... ℘ doz $4.50, dis 33⅓ %
Family (T. & S. Mfg. Co.).......... ℘ gro, $17.00@$18.00
Standard.......... ℘ gro, $12.00
Kingston.......... ℘ gro, $9.00
Acme.......... ℘ gro, $8.00
Triumph (T. & S. Mfg. Co.).......... ℘ gro, $10.50@$11.50

Emery.
Regular numbers.......... ℘ ℔ 8¢
Flour and F. F.......... ℘ ℔ 6½¢
For Emery Paper and Cloth, see Sand Paper.

Enameled and Tinned Ware.—See Hollow-Ware.

Escutcheon Pins.
Brass.......... dis 60 %

Escutcheons.
Door Lock.......... Same discounts as Door Locks
Brass Thread.......... dis 60 %
Wood.......... dis 25 %

Faucets.
Fenn's.......... dis 40 %
Bohren's Patent Rubber Ball.......... dis 25 %
Fenn's Cork Stops.......... dis 33⅓ %
Star.......... dis 55&10 %
Frary's Patent Petroleum.......... dis 40&5 @ 40&10 %
West's Patent Key.......... dis 45 %
Anchor Lock.......... dis 45 %
Metallic Key, Leather Lined.......... dis 60 %
Cork Lined.......... dis 70 %
J. Sommer's Best Block Tin Key.......... dis 40 %
J. Sommer's Cork Lined, 1st quality.......... dis 50 %
J. Sommer's Diamond Lock.......... dis 40 %
Self-Measuring, Enterprise... ℘ doz $36.00—dis 20&10 %
Self-Measuring, Lane's.......... ℘ doz $36.00—dis 25&10 %
Self-Measuring, Victor.......... ℘ doz $36.00—dis 25&10 %

Felloe Plates........... ℘ ℔ 10¢, dis 30 %

Files.
J. & Riley Carr.......... New list, April 1, 1883, dis 15 %
J. & Riley Carr Horse Rasps.......... dis 10 %
Moss & Gamble.......... New list, dis 15 %
Butcher.......... New list, dis 20 %
Best Files of domestic make, according to brand.......... dis 60 @ 60&10 %
Cheaper domestic Files.......... dis 60&10 @ — %
New Am. File Co., Pat. Tapers.......... dis 45 @ 50 %
Stubs.......... dis 25 @ 30 %

Fluting Machines.
Knox, 4½-inch Rolls.......... $3.25 each } dis 35 %
Knox, 6-inch Rolls.......... $3.60 each }
Eagle, 3½-inch Roll.......... $2.15, dis 35 %
Eagle, 5½-inch Roll.......... 2.85, dis 35 %
Crown, 4½ in., $3.50; 6-in, $4.00; 8-in., $6.50 each, dis 35 %
Crown Jewel.......... 6-in., $3.50 each, dis 35 %
American, 5-in., $3; 6-in., $3.40; 7-in., $4.50 each, dis 35 %
Domestic Fluter.......... $1.50 each, net
Geneva Hand Fluter, White Metal.. ℘ doz $12, dis 25 %
Crown Hand Fluter, Nos. 1, $15; 2, $12.50; 3, $10.00, ℘ doz.......... dis 30 %
Shepard Hand Fluter, No. 85...... ℘ doz $15.30, dis 40 %
Shepard Hand Fluter, No. 110.......... ℘ doz $11, dis 40 %
Shepard Hand Fluter, No. 95.......... ℘ doz $8, dis 40 %
Clark's Hand Fluter.......... ℘ doz $15.00, dis 33⅓ %
Combined Fluter and Sad Iron... ℘ doz $15.00, dis 30 %
Buffalo.......... ℘ doz $10.00, dis 10 %

Fluting Scissors........... dis 45 %

Fly Traps.
Paragon.......... ℘ doz

Forks.
Hay, Manure and Spading...... dis 60&10 @ 60&10&5 %
Plated, see Spoons.

Freezers.—See Ice-Cream Freezers.

Fruit and Jelly Presses.
Enterprise Mfg. Co.......... dis 20&10 @ 30 %

Fry Pans.
Burnished list as follows, S. S. & Co. ...... dis 70@70&5

No..........	0	1	2	3	4	5	6	7	8
℘ doz..........	$3.00	3.75	4.25	4.75	5.25	6.00	7.00	8.00	9.00

"Acme".......... dis 55 %

Gauges.
Marking.......... dis 60&10 %
Wire.......... dis 10&10 %
Wire, Wheeler, Madden & Co.......... dis 10 %

Gimlets.
Nail and Spike.......... dis 50&10&5 %
"Eureka" Gimlets.......... dis 40&10 %
"Diamond" Gimlets.......... dis 40&10 %
Double Cut, Shepardson's.......... dis 45 %
Double Cut, Ives'.......... dis 50 %
Double Cut, Douglass'.......... dis 40 %
"Bee".......... ℘ gross $12, dis 25 %

Glue Pots.
Tinned and Enameled.......... dis 40 %
Family, Howe's "Eureka".......... dis 40 %
Family, L. F. & C.'s "Handy".......... dis 45 %

Grindstone Fixtures.
Sargent's Patent.......... dis 70&10&10 %
Reading Hardware Co.......... dis 35&10 %

Gun Wads.
U. M. C. B. E., 11 up.......... $1.60
U. M. C. B. E., 9&10.......... 1.85
U. M. C. B. E., 7&8.......... 2.10
U. M. C. P. E., 11 up.......... 2.50
U. M. C. P. E., 9&10.......... 3.20
U. M. C. P. E., 7&8.......... 4.00
Eley's B. E., 11 up.......... 1.75
Eley's P. E., 11 @ 20.......... 2.80

Hack Saws.
Griffin's Hack Saws, complete.......... dis 40&10 %
Griffin's Hack Saw, Blades only.......... dis 20&10 %
Star Hack Saws and Blades.......... dis 25 %

Halters.—Covert's Pat. ½ Jute.......... dis 50&10 %
Covert's Hemp Horse and Cattle Ties.......... dis 50&10 %
Covert's Jute Horse and Cattle Ties.......... dis 60 %
Meneely's Pat. Rope and Web.......... dis 40&10 %
Meneely's Horse and Cattle Ties.......... dis 40&10 %

Hammers.—Maydole's.......... dis 15&10 %
Cheney's, new list, March, 1883.......... dis 20&10 %
Hartford Hammer Co.'s Nail Ham's.. dis 25&5@25&10 %
Buffalo Hammer Co.......... dis 30 @ 35 %
C. Hammond & Son.......... dis 40&10 @ 50 %
Humason & Beckley.......... dis 15 @ 20 %
Verree.......... dis 5 %
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 and 1.75. dis 25&10 %
Nelson Tool Works.......... dis 40&10 %
Warner & Nobles.......... dis 10 %
Yerkes & Plumb.......... dis 40&10 %
Wilkinson's Smiths'.......... 11¢ @ 11½¢ ℘ ℔ net
Heavy Hammers and Sledges.......... dis 60 @ 60&10 %

Hand Cuffs and Leg Irons.
Providence Tool Co., Hand Cuffs, $15.00 ℘ doz.. dis 10%
Providence Tool Co., Leg Irons, $25.00 ℘ doz.... dis 10%
Tower's.......... dis 25 %
Daley's Improved Hand Cuffs: 2 Hands, Polished, ℘ doz, $48; Nickeled, $57; 3 Hands, Polished, ℘ doz, $72; Nickeled, $84.......... dis 20 %

Handles.—Door or Thumb Latches.

Nos.	0	1	2	3	4	
Per doz..	$0.90	1.00	1.18	1.35	1.50	dis 60&10&10 %

Roggin's Latches.......... ℘ doz. 32¢ @ 37¢ net
Bronze Iron Drop Latches.......... ℘ doz. 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88.......... net
Barn Door.......... ℘ doz. $1.40, dis 10&10 %
Wrought Chest.......... dis 70 %
Surface Chest.......... dis 70 %
Flush Chest.......... dis 70 %
Lifting.......... dis 70 %
Saw and Plane.......... dis 40&10 %
Boynton's Loop Saw Handles.......... 50¢, dis 60 %
Hammer and Hatchet.......... dis 20 %
Brad Awl.......... ℘ gross $2.00
Hickory Firmer Chisel, assorted.......... ℘ gross $4.50 }
Hickory Firmer Chisel, large.......... ℘ gross 5.00 }
Apple Firmer Chisel, assorted.......... ℘ gross 5.00 } dis 40 %
Apple Firmer Chisel, large.......... ℘ gross 6.00 }
Socket Firmer Chisel, assorted.......... ℘ gross 3.00 }
Socket Framing Chisel, assorted.......... ℘ gross 5.00 }
File, assorted.......... ℘ gross 2.75 } dis
Auger, assorted.......... ℘ gross 5.00 } 25&10 %
Auger, large.......... ℘ gross 7.00 }
Patent Auger, Ives'.......... dis 25 %
Patent Auger, Douglass'.......... ℘ set $1.25 net
Patent Auger, Swan's.......... ℘ set $1.00 net

Hangers.
Barn Door, old patterns.......... dis 60&10&10 %
Barn Door, New England.......... dis 70 %
Climax (Anti-Friction).......... dis 55 %
Zenith Anti-Friction Wood Track.......... dis 55 %
Wood Track, Iron Clad.. ℘ ft. 8¢, dis 50&5 @ 50&10 %
Reed's Steel Arm.......... dis 40 %
Challenge.......... dis 50 %
"Champion" Medina Mfg Co.......... dis 60 %
Sterling Improved (Anti-Friction).......... dis 65&10 %
Double Cut, Hartwell's.......... dis 40&10 %
Victor, No. 1, $15; No. 2, $16.50; No. 3, $18.... dis 33⅓ %
Cheritree.......... dis 50&5 %
Kidder's.......... dis 50&10 %
U. S.......... dis 60&10 %
The "Boss".......... dis 60 %
Best Anti-Friction.......... dis 60 %
Duplex (Wood Track).......... dis 60 %
Terry's Patent.......... ℘ doz. pr., 3½ in. $10; 5 in., $12.......... dis 40&5 %
Cronk.......... No. 4, $12; No. 5, $14.40; No. 6, $18.......... dis 50&5 @ 50&10 %
Architect.......... ℘ set $6.00, dis 20 %
Eclipse.......... dis 20&10
Felix.......... ℘ set $4.50, dis 20 %
Hamilton Wrought.......... dis 50 @ 50&5 %
Richards'..(lots of 50 sets dis 20&10&10 %).. dis 20&10 %
Lane's Steel Anti-Friction.......... dis 25&10 %

Harness Snaps.
Anchor (T. & S. Mfg Co.).......... dis 65 %
Henshaw's, list of 1¼ changed to $14.00.......... dis 65 %
Judd's, list of 1¼ changed to $14.00.......... dis 65 %
Fitch's (Bristol), list of 1¼ changed to $14.00.... dis 65 %
Hotchkiss.......... dis 10 %
Andrews.......... dis 50 %
Sargent's Patent Guarded.......... dis 70&10&10 %
German, old list.......... dis 75 %
German, Sargent's new list.... dis 60&10 @ 60&10&10 %
Covert.......... dis 50 %
Covert, New Patent, new list.......... dis 50 %
Covered Spring.......... dis 66⅔&10 %
Meneely's Pat. Safety (Old German list)... dis 60&15 %
Meneely's Imp. German (Old German list).. dis 50&10 %

Hatchets.
Isaiah Blood.......... dis 35 @ 40 %

Shingling,	Nos. 1 2 3	℘ doz	$7.25	$8.00	$8.75
Claw,	Nos. 1 2 3	℘ doz	7.75	8.50	9.25
Lathing,	Nos. 1 2 3	℘ doz	7.50	8.00	8.50

Hunt's.......... 37½ @ 35&5 %

Shingling,	Nos. 1 2 3	℘ doz	$7.25	$8.00	$8.75
Claw,	Nos. 1 2 3	℘ doz	7.75	8.50	9.25
Lathing,	Nos. 1 2 3	℘ doz	7.50	8.25	9.00

Hurd's.......... dis 40&5 @ 45 %

Shingling,	Nos. 1 2 3	℘ doz	$8.00	$8.50	$9.00
Claw,	Nos. 1 2 3	℘ doz	9.00	9.50	10.00
Lathing,	Nos. 1 2 3	℘ doz	8.00	8.50	9.00

Yerkes & Plumb.......... dis 40&5 @ 40&10 %

Shingling,	Nos. 1 2 3	℘ doz	$7.50	$8.00	$8.50
Claw,	Nos. 1 2 3	℘ doz	8.25	8.75	9.25
Lathing,	Nos. 1 2 3	℘ doz	7.50	8.00	8.50

Underhill Edge Tool Co.......... dis 40 %

Shingling,	Nos. 1 2 3	℘ doz	$7.25	$8.00	$8.75
Claw,	Nos. 1 2 3	℘ doz	7.75	8.50	9.25
Lathing,	Nos. 1 2 3	℘ doz	7.50	8.25	9.00

Lathing, Solid Steel.......... dis 30 @ 35 %
No. 1, $12. Boston Pattern, $18.
C. Hammond & Son.......... dis 45 @ 50 %

Shingling,	Nos. 1 2 3	℘ doz	$8.00	$8.50	$9.00
Lathing,	Nos. 1 2 3	℘ doz	8.00	8.50	9.99
Claw,	Nos. 1 2 3	℘ doz	8.50	9.00	9.50
Broad,	Nos. 1 2 3	℘ doz	11.00	13.50	16.00

Simmons.......... dis 35 @ 40 %

Shingling,	Nos. 0 1 2 3..	℘ doz	$7.50	$8.00	$8.50	$9.00
Claw,	Nos. 0 1 2 3..	℘ doz	....	8.50	9.00	9.50
Lathing,	Nos. 0 1 2 3..	℘ doz	....	8.00	8.50	9.00
Broad,	Nos. 1 2 3 4..	℘ doz	9.00	10.00	12.00	14.00
Broad,	Nos. 5 6 7 8..	℘ doz	16.00	18.00	20.00	22.00

Collins.......... dis 10 %

Shingling,	Nos. 1 2 3	℘ doz	$5.50	$6.00	$6.50
Claw,	Nos. 1 2 3	℘ doz	6.00	6.50	7.00
Lathing,	Nos. 1 2 3	℘ doz	5.50	6.00	6.50

Peck's Champion Blade.......... dis 40&10 @ 40&10&5 %

Shingling,	Nos. 1 2 3	℘ doz	$8.00	$8.50	$9.00
Lathing,	Nos. 1 2 3	℘ doz	8.00	8.50	9.00
Claw,	Nos. 1 2 3	℘ doz	9.00	9.50	10.00
Half,	Nos. 1 2 3	℘ doz	8.00	8.50	9.00
Broad,	Nos. 1 2 3	℘ doz	10.00	11.00	13.00
Broad,	Nos. 4 5 6	℘ doz	14.50	16.50	18.00
Ax Pattern,	Nos. 1 2 3	℘ doz	10.00	11.00	12.00

Hay Knives.
"Lightning".......... ℘ doz $18, dis 10 @ 10&5 %
Electric.......... ℘ doz $12.50 net
Wadsworth's.......... dis 35&5 %
Heath Patent.......... ℘ doz $13.50 net

Hinges.
Gate, Western.......... ℘ doz $4.40, dis 55 %
Gate, N. E.......... ℘ doz $7.00, dis 55 %
Gate, N. E. Reversible.......... ℘ doz $5.20, dis 55 %
Gate, Clark's, Nos. 1 2 3.......... dis 60&10&2 %
Gate, N. Y. State.......... ℘ doz $5.00, dis 55 %
Gate, Automatic.......... ℘ doz $12.50, dis 50 %
Gate, Common Sense.......... ℘ doz pair $4.50, dis 50 %
Gate, Seymour's.......... dis 45&10 %
Gate, Shepard's, Nos. 1, 2, 10 and 20..... dis 60&10&10 %
Gate, Shepard's, No. 3.......... dis 60&10&5 %
Reed's Latch and Hinge.......... ℘ doz sets $12, dis 50 %
Rolled Blind Hinges.......... dis 60&10 %
Rolled Plate.......... dis 70 %
Rolled Raised.......... dis 70 %
Plate Hinges { 8, 10 & 12 in., ℘ ℔.......... 4¢
"Providence" { over 12 in., ℘ ℔.......... 3¢
Screw Hook and { 8, 10, 12 in., ℘ ℔.......... 3¼@3⅝¢
Strap.......... { 14 to 36 in., ℘ ℔.......... 2½@2⅝¢
Heavy Welded Hook { 8 to 12 in., ℘ ℔.......... 3¼@3⅝¢
{ 14 in. & up, ℘ ℔.......... 2½@2⅝¢
Screw Hook and Eye.......... { ½ in.... ℘ doz $1.50 } dis
{ ⅝ in.... ℘ doz $2.45 } 10 %
{ ¾ in.... ℘ doz $3.80 }
Wrought Strap and T.......... dis 70&2 @ 70&5 %

Hoes.
Garden, Mortar, &c.......... dis 60&10 @ 60&10&5 %
Planter's, Cotton, &c.......... dis 60&10 @ 60&10&5 %
Magic.......... ℘ doz $4.75 @ $5
Grub.......... ℘ doz $10.50 @ $12.00, dis 60 %

Hoisting Apparatus.
"Moore's" Hand Hoist, with Lock Brake....... dis 15 %
"Moore's" Differential Pulley Block.......... dis 20 %

Hollow-Ware.
Stove Hollow-Ware, Ground and Unground.......... dis 50&10&5@60 %
Enameled and Tinned Hollow-Ware—
Kettles.......... dis 60@60&5 %
Oval Boilers, Saucepans and Glue Pots........ dis 40 %
Gray Enameled Ware.......... dis 45 %
Rustless Hollow-Ware.......... dis 50&5@50&10 %
Galvanized Tea-Kettles—

Inch......	6	7	8	9
Each....	45¢	50¢	55¢	65¢

Hooks.
Bird Cage, Sargent's list.......... dis 66⅔&10 %
Bird Cage, Reading.......... dis 60&10@60&10&10 %
Cotton.......... ℘ doz $4.00, dis 50 %
Cotton Patented (N. Y. Mallet & Handle W'ks), dis 30 %
Cotton (Humason & Beckley Mfg. Co.)....... dis 50&10 %
Belt.......... dis 80@80&5 %
Bench Hooks.......... See Bench Stops
Clothes Line, Sargent's list.......... dis 66⅔&10 %
Clothes Line, Reading list.......... dis 66⅔&10 %
Ceiling, Sargent's list.......... dis 60&10&10&10 %
Harness, Reading list.......... dis 60&10&10 %
Coat and Hat, Sargent's list.......... dis 60&10&10&10 %
Coat and Hat, Reading.......... dis 60&10&10 %
Wire Coat and Hat, Gem.......... dis 45 %
Wire Coat and Hat, Miles'.......... dis 70 %
Picture Hooks, Brown's Pat. Solid Brass, $4.00 ℘ gross.......... dis 25 %
Tassel and Picture (T. & S. Mfg. Co.).......... dis 50 %
Wrought Staples and Hooks and Staples.......... dis 80&10@80&10&5 %
Wrought Staples, Stanley's list.......... dis
Wire Screw Hooks and Screw Eyes.... dis 70&10&10 %
Grass and Bush.......... dis 55 @ 60 %
Whiffletree—Patent.......... dis 55 %
Hooks and Eyes—Malleable Iron.......... dis 70 %
Hooks and Eyes—Brass.......... dis 60&10&10 %

Horse Nails.

		5	6	7	8	9	10	
Ausable......	℘ ℔	31¢	28¢	26¢	25¢	24¢	23¢	dis 25&10 %
Clinton, Pl'n.	℘ ℔		23¢	21¢	20¢	19¢	18¢	dis 25&10 %
Clinton, Fin..	℘ ℔		24¢	22¢	21¢	20¢	19¢	dis 25&10 %
Essex.........	℘ ℔	31¢	28¢	26¢	25¢	24¢	23¢	dis 25&10&5 %
Putnam.......	℘ ℔	27¢	24¢	22¢	21¢	20¢	19¢	dis 5&7 %
Vulcan.......	℘ ℔	26¢	23¢	21¢	20¢	19¢	18¢	dis 15 %
Northwest'n.	℘ ℔	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&5&5 %
Globe........	℘ ℔	26¢	23¢	21¢	20¢	19¢	18¢	dis 10&5&5 %
A. C..........	℘ ℔	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&10&5 %
C. B.-K.......	℘ ℔	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&10 %
Champlain...	℘ ℔	31¢	28¢	26¢	25¢	24¢	23¢	dis 25&10&5 %
New Haven..	℘ ℔	31¢	28¢	26¢	25¢	24¢	23¢	dis 40 %
Bridgewater.	℘ ℔	26¢	23¢	21¢	20¢	19¢	18¢	dis 30 %
Saranac......	℘ ℔	26¢	23¢	21¢	20¢	19¢	18¢	dis 20 %
Champion....	℘ ℔	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&10&5 %
Capewell.....	℘ ℔	31¢	28¢	26¢	25¢	24¢	23¢	dis 33⅓&5 %

Horse Shoes.
Burden, at factory.......... ℘ keg $3.75
R. I. Horse Shoe Co., Perkins' Imp., at factory.......... ℘ keg $3.75
Walker's Forged, at factory.......... ℘ keg $3.75
Mule Shoes, at factory.......... ℘ keg $4.75

Hose, Rubber.
N. Y. Belting & Packing Co., Standard.......... dis 50&10@50&10&5 %

Ice Awls, Chisels, &c.
American Ice Chisel Pol'd.......... ℘ doz $3.00, dis 20 %
National Ice Chisel.......... ℘ doz $6.25, dis 20 %
Novelty Ice Breakers.......... ℘ doz $6.25, dis 20 %
White's Sliding Head Picks.......... ℘ doz $2.50, dis 40 %
Dunlap's Ring Picks.......... ℘ doz $2.00, dis 25 %
Wood Head Picks, Sargent's.... ℘ doz $1.60, dis 50&10 %
Iron Head Picks, Sargent's.... ℘ doz $1.25, dis 50&10 %
Ice Mallets, Pick in handle.......... ℘ doz $2.00, dis 15 %
Ice Axes, Small Cast or Mall... ℘ doz $1.25, dis 50&10 %
Combination Ice Tools.......... ℘ doz $2.00 net
Acme Ice Pick and Tongs... ℘ gross $55.00, dis 50&10 %

Ice Cream Freezers.
American, Crown and Star.......... dis
Gem.......... dis 55
Buffalo Champion, S. S. & Co.......... dis 50&10 %

Ice Tongs.
Champion, S. S. & Co.......... ℘ doz $4.00, dis 25&10 %
Family.......... ℘ doz $2.75, dis 20 %

Kettles.
Brass, 7 to 17 inches inclusive.... ℘ ℔ 28¢ dis 20 %
Brass larger than 17 inches.......... ℘ ℔ 32¢, dis 20 %
Enameled and Tea Kettles.......... See Hollow-Ware

Knives.
Ames' Butcher Knives.......... dis 25 %
Nichols' Butcher Knives.......... dis 40&10 %
Ames' Shoe Knives.......... dis 15 @ 15&5 %
Ames' Bread Knives.......... ℘ doz $1.50, dis 15 @ 15&5 %
Moran's Shoe and Bread Knives.......... dis 20 %
Hay and Straw.......... See Hay Knives
Table and Pocket.......... See Cutlery

Knobs.
Carriage, Japanned.......... ℘ gross 80¢, dis 60&10 %
Base, Rubber Tip.......... dis 70&10&5 %
Hemacite Door Knobs, new list.......... dis 35&5 %
Door Mineral.......... } Same discounts as Door
Door Por. Jap'd.......... } Locks, but lower net prices
Door Por. Plated.......... } sometimes made.
Door Por.......... }
Furniture Plain.......... 75¢ gross inch, dis 10 %
Furniture, Wood Screws.......... dis 25&10 %
Picture, Judd's.......... dis 60&10&10 %
Picture, Sargent's.......... dis 65&10 %
Hemacite, Picture.......... dis 35 %
Shutter, Porcelain.......... dis 65&10 %

Ladles.
Melting, Sargent's.......... dis 60&10 %
Melting, Reading.......... dis 40&10 %
Melting, Monroe's Patent.......... ℘ doz. $4.00, dis 40 %
Melting, P. S. & W.......... dis 30&10 %

Lanterns.
Tubular, Standard No. 0, ℘ doz.......... $6.75 @ $7.00
Tubular, Standard No. 1, ℘ doz.......... 8.50 @ 9.00
Tubular, Lift Wire, No. 0, ℘ doz.......... 8.25 @ 8.75
Tubular, Lift Wire, No. 1, ℘ doz.......... 10.50
Guards for Tubulars, add ℘ doz.......... .25
Police, Small, $6.00; Medium, $7.25; Large, $9.75.......... dis 10@15 %
Porter's Tin R. R.......... $10 dis 20 %
Owl.......... $9, dis 20@25 %

Lawn Mowers.
Excelsior Roller.......... dis 40&3 %
Excelsior Side Wheel.......... dis 40&10&3 %
Clipper.......... dis 40&10&3 %
Philadelphia.......... dis 40&10&3 %
Buckeye.......... dis 50 %

Lemon Squeezers.
Porcelain Lined.......... ℘ doz. $6.00, dis 35&5 %
Wood.......... ℘ doz. $3.00, dis 35 %
Eureka, Tinned.......... ℘ doz. $8.00, dis 10 %
Dunlap's Improved.......... ℘ doz. $3.75, dis 20 %
Sammis'...... No. 1, $5; 2, $9; 12, $18 ℘ doz., dis 20&10 %
Townsend's Patent.......... $6.00 ℘ doz., dis 33⅓ %
Jennings' "Star".......... $3.00 ℘ doz. net
The "Boss".......... ℘ doz. $4.00, dis 10&10 %
Dean's Nos. 1, ℘ doz. $15.00; 2, $8.00; 3, $5.50..... dis 55 %
Little Giant.......... dis 50 %
Acme.......... ℘ gross $55.00, dis 50 %

Lines.—Linen Fish.......... dis 25&10 %
Cotton Chalk.......... dis 55 %
Silver Lake, Braided, Nos. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ℘ gross.......... dis 25 %
Masons' Linen, No. 3½, $1.50; No. 4, $2; No. 4½, $2.50.......... Net
Masons' Colored Cotton.......... dis 45 %
Wire Clothes, No. 18, $4.25; No. 19, $3.25; No. 20, $2.75.......... dis 10 %

Locks, Padlocks, Cabinet Locks, &c.
Door Locks, new list, Dec. 10, '84. Some numbers changed February 5, 1885.......... dis 66⅔&5&2 %
Reading Hardware Co. (rev. list Jan., 1885).. dis 60&10 %
Plate.......... dis 33⅓&2 %
F. Many's "Extension Cylinder"...... $10.50 ℘ doz net
Barnes Mfg. Co.......... dis 40 %
Yale Flat Key.......... dis 40 %
Dietz Flat Key.......... dis 30 %
Stoddard.......... dis 30 %
Langstroth & Crane's:
Round Key Latches.......... dis 40&10 %
Flat Key Latches.......... dis 33⅓&10 %
Cabinet, Eagle.......... } Changes made in list price
Cabinet, Gaylord.......... } of some numbers March
Cabinet, Parker.......... } 10, 1884, dis 40&2 % cash.
Cabinet, Corbin.......... }
Cabinet, A. E. Deitz.......... dis 30@40 %
Cabinet, Stoddard Lock Co.......... dis 30 %
A. E. Deitz, Flat Key Drawer.......... dis 30@40 %
Yale new list.......... dis 40 %
"Shepardson" or "U. S.".......... dis 35 %
"Felter" or "American".......... dis 40&10 %
Eagle and Corbin Trunk.......... dis 25&2 %
"Champion" Night Latches.......... dis 40 %
"Champion" Cabinet and Combination...... dis 33⅓ %

PADLOCKS.

Russell & Erwin.......... } New list Dec. 23, 1884.
Mallory, Wheeler & Co.......... } dis. 66⅔&5&2 %
Nimick & Brittan Mfg. Co.......... }
Wm. Wilcox & Co.......... }
Norwich Lock Co.......... }
Yale Lock Mfg. Co.'s.......... dis 40 %
Eagle.......... dis 25&2 %
Romer's, Nos. 0 to 91.......... dis 40 %
Romer's, Nos. 200 to 505.......... dis 25 %
A. E. Dietz.......... dis 35 %
"Star".......... dis 45 %
"Horse Shoe," ℘ doz., $9.......... dis 40 %
Fraim's Pat. Scandinavian, new list (low)...... dis 60 %
Barnes Mfg. Co.......... dis 40 %
Nock's.......... dis 30 %
Brown's Patent.......... dis 25 %
Scandinavian.......... dis 87½ @ 87½&5 %
"Champion" Padlocks.......... dis 33⅓ %

Lustro.
Four-ounce bottles...... ℘ doz, $1.75; ℘ gro. $17.00 net

Mallets.
Hickory.......... dis 10&10&5 %
Lignumvitæ.......... dis 10&10&5 %
Penfield Block Co., Lignumvitæ and Hickory.. dis 30 %

Meat Cutters.

Dixon's (P. S. W&.) Nos	1	2	3	4	
℘ doz..	$14.00	17.00	19.00	30.00	dis 40 %
Miles' Challenge........ Nos.	1	2	3		
℘ doz..	$22.00	30.00	40.00		dis 40 %
Woodruff's (P. S. & W.)...... Nos.	100	150			
℘ doz.	$15.00	18.00			dis 45 %
Hales'...... Nos.	11	12	13		
℘ doz..	$27.00	33.00	50.00		dis 60&10&2@70 %

Draw Cut.. Nos.	5	2	6	8	10	
Each..	$50.00	75.00	80.00	225.00	400.00	dis 20 %

American.......... dis 35 %

Nos..........	1	2	3	4	5	
Each......	$5.00	7.00	10.00	25.00	50.00	60.00

Enterprise.......... dis 25@20&10 %

Nos..........	10	12	22	32	42
Each..........	$3.00	2.50	4.00	6.00	10.00

Kieser's No. 55.......... $40 ℘ doz, dis 40 %
Kieser's Gem.......... $25 ℘ doz, dis 40 %
Kieser's Monarch.......... $45 ℘ doz, dis 40 %
Kieser's Butcher.......... $40 each, dis 20 %
Silver & Deming.......... dis 25 %
Pennsylvania.......... dis 40&10 %

Nos..........	1	2	3	00
℘ doz..........	$24.00	28.00	36.00	28.00

Beef Shavers (Enterprise Mfg. Co.).......... dis 20&10 %

Mincing Knives.
Am. (2d quality), ℘ gro, 1 blade, $7; 2 blades, $12; 3 blades, $18.......... Net
Lothrop's.......... dis 20&10 %
Smith's, ℘ doz, Single, $2.00; Double, $3.... dis 40@45 %
Cowles Hdw. Co.......... dis 60 %

Molasses Gates.—Stebbins' Patterns..... dis 80 %
Stebbins' Genuine.......... dis 75 %
Stebbins' Tinned Ends.......... dis 40&10 %
Chase's Hard Metal.......... dis 50&10 %
Bush's.......... dis 20 %
Lincoln's Pattern.......... dis 70&10 %
Weed's.......... dis 20&10 %

Boss Nos..	1	2	3	4	
	$7.00	8.00	9.00	10.00	℘ doz, dis 60&10&10 %

Money Drawers.
Defiance (De la Vergne Works).......... ℘ doz $18.00
Tucker's.......... ℘ doz $18.00

Nails ... See Trade Report
Wire Nails ... dis 50 @ 50&5 %

Nail Puller.
Curtiss Hammer ... ⅌ doz $9.00 net
Giant, No. 1 ... ⅌ doz $30.00, dis 10 %
Boss ... ⅌ doz $30.00, dis 25 %

Nuts and Washers.
In lots less than 100 ℔, ⅌ ℔ add ½¢ to list; 1 ℔ boxes, 1¢ to list.
Square Nuts ... 9¼¢ off list
Hexagon ... 10¼¢ off list
Washers ... 9¼¢ off list

Nut Crackers.
Table (Humason & Beckley Mfg. Co.) ... dis 40 %
Blake's Pattern ... ⅌ doz $2.00, dis 10 %
Turner & Seymour Mfg. Co. ... dis 50 %

Oakum.—Dis on 100 bales and over, ½ % ⅌ ℔
Best ... ⅌ ℔ 8 ¢
U. S. Navy ... ⅌ ℔ 7½¢
Navy ... ⅌ ℔ 6¾¢

Oilers.
Zinc and Tin ... dis 60&10&5 @ 70 %
Brass and Copper ... dis 50 %
Malleable (Hammer's), No 1, $3.25; No. 2, $3.60; No. 3, $4.00 ⅌ doz ... Net
Prior's Patent or "Paragon" Zinc dis 60&5 @ 60&10 %
Prior's Patent or "Paragon" Brass ... dis 50 %
Olmstead's Tin and Zinc ... dis 60 %
Olmstead's Brass and Copper ... dis 50 %
Broughton's Zinc ... dis 60 %
Broughton's Brass ... dis 50 %

Packing, Steam.
N. Y. Belting & Packing Co ... dis 50 @ 50&10 %

Peach Parers.
Rotary Knife ... ⅌ doz $15, dis 10 %
Diamond State ... ⅌ doz $15, dis 10 %

Pencils.
Faber's Carpenters' ... high list, dis 50 %
Faber's Round Gilt ... ⅌ gro $5.25 net
Dixon's Lead ... ⅌ gro $4.50 net
Dixon's Lumber ... ⅌ gro $6.75 net
Dixon's Carpenters' ... dis 40&10 %

Picks.
Railroad, 5 to 6, $11.00; 6 to 7, $12.. dis 60&5 @ 60&10 %
Adze Eye, 5 to 6, $12.00; 6 to 7, $13.. dis 60&5 @ 60&10 %

Picture Nails.
Brass Head, Sargent's list ... dis 50&10&10 %
Brass Head, T. & S. Mfg. Co. ... dis 50 %
Porcelain Head, Sargent's list ... dis 50&10 %
Porcelain Head, Judd's list ... dis 40 %
Porcelain Head, T. & S. Mfg. Co ... dis 40 %
Niles' Patent ... dis 40 %

Pinking Irons ... ⅌ doz 65¢ net

Planes and Plane Irons.
Bench, First Quality ... dis 20&2 % } Extra 5 @ 10 % sometimes given.
Bench, Second Quality ... dis 25&2 % }
Molding ... dis 15&2 % }
Bailey's (Stanley R. & L. Co.) ... dis 20&10 %
The Stanley (S. R. & L. Co.) ... dis 20&10 %
Bailey's "Victor" ... dis 20&10 %
Meriden Mal. Iron Co.'s Iron Planes ... dis 20&10 %
Plane Irons, Butcher's ... $5.00 @ $5.25 to £
Plane Irons, Buck Bros ... $5.00 to £
Plane Irons, Auburn Tool Co ... dis 20&10 %
Plane Irons, The Globe Mfg. Co., "Baldwin Iron" ... dis 33⅓ %
L. & I. J. White ... dis 25 %
Plane Irons, Ohio Tool Co ... dis 20&10 %
Plane Irons, Sandusky Tool Co ... dis 20&10 %

Pliers and Nippers.
Button's Patent ... dis 33⅓ @ 30&10 %
Hall's Pat. Compound Lever Cutting Nippers, No. 2, 5 in., $13.50; No. 4, 7 in., $21.00 ⅌ doz ... dis 20&10 %
Humason & Beckley Mfg. Co ... dis 50 %
Gas Pliers ... dis 60 %
Eureka Pliers and Nippers ... dis 40 %
Russell's Parallel ... dis 25 %
P. S. & W. Cast Steel ... dis 50 %
P. S. & W. Tinners' Cutting Nippers ... add 6 % dis 10 %

Plumbs and Levels.
Disston's ... dis 45&10 %
Stanley R. & L. Co.'s Pat. Adjustable ... dis 70&10 %
Stanley R. & L. Co.' Non-Adjustable ... dis 70&10 %
Chapin's Patent Adjustable ... dis 70&10 %
Chapin's Non-Adjustable ... dis 70&10 %
Standard Rule Co.'s New Adjustable ... dis 70&10 %
Standard Rule Co.'s Non-Adjustable ... dis 70&10 %
Johnson's Patent Adjustable ... dis 70&10 %
Pocket Levels ... dis 70&10 %
Davis' Inclinometers ... dis 20 %

Post Hole and Tree Augers and Diggers.
Samson Post Hole Digger ... ⅌ doz $36.00, dis 20&10 %
Fletcher Post Hole Augers ... ⅌ doz $36.00, dis 20 %
Eureka Diggers ... ⅌ doz $24 @ $25
Leed's ... ⅌ doz $9.50 @ $10.50
Vaughan's Hollow Tube Post Hole—6 in., $23.60; 7, 8 and 9 in., $25.00 ⅌ doz ... dis 20&10@20&10&10 %
Kohler's Little Giant ... ⅌ doz $24
Cronk's Post Bars ... ⅌ doz $72, dis 50&5 @ 50&10 %

Potato Parers.
White Mountain ... ⅌ doz $5.50
Antrim Combination ... ⅌ doz $8.00
Hoosier ... ⅌ doz $13.50

Pruning Hooks and Shears.
Disston's Combined Pruning Hook and Saw. ⅌ doz $18.00 ... dis 20&10 %
Disston's Pruning Hook ... ⅌ doz $12.00, dis 20&10 %
E. S. Lee & Co.'s Pruning Tools ... dis 40 %
Pruning Shears ... ⅌ doz $3.75 @ $4.00 net
Henry's Pruning Shears ... ⅌ doz $4.50 net
Wheeler, M. & Co.'s Combination ... ⅌ doz $12, dis 20 %
Dunlap's Saw and Chisel ... ⅌ doz $8.50, dis 30 %

Pulleys.
Hot House, Awning, &c ... dis 66⅔&10 %
Japanned Screw ... dis 66⅔&10 %
Brass Screw ... dis 70&10 %
Japanned Side ... dis 66⅔&10 %
Japanned Clothes Line ... dis 60&10 %
Hay Fork, Solid Eye, $4.00; Swivel, $1.50.. dis 50&10 %
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70 ... dis 50 %
Hay Fork, "F" Common and Pat. Bushed ... dis 20 %
Hay Fork, Tarbox Pat. Iron ... dis 20 %
Shade Rack ... dis 45 %
Tackle Blocks ... See Blocks

Pumps
Cistern, Best Makers ... dis 50 %
Pitcher Spout, Best Makers ... dis 60 %
Pitcher Spout, Cheaper Goods ... dis 70 %

Punches.
Saddlers' or Drive, ⅌ doz $2.00; 2.25; 2.50 ... dis 60@60&10 %
Bemis & Call Co.'s Cast Steel Drive ... dis 50&5 %
Bemis & Call Co.'s Springfield Socket ... dis 50&5 %
Spring ... ⅌ doz $6.00, dis 55 @ 60 %
Spring, Leach's Patent ... dis 15 %
Bemis & Call Co.'s Spring and Check ... dis 40 %
Solid Tinners' ... ⅌ doz $1.44, dis 55 %
Tinners' Hollow Punches ... dis 20&2 %

Rail.
Sliding Door, Wrought Brass ⅌ ℔ 35¢, dis 20@25 %
Sliding Door, Bronzed Wrt. Iron ⅌ foot 12¢, dis 35 %
Sliding Door Iron, Painted ... ⅌ foot 4¢, dis 20&10 %

Barn Door, Light ... Inch.	⅝	¾	⅞	
Per 100 feet	$2.50	3.00	4.40	—dis 10 %

B. D. for N. E. Hangers—	Small.	Med.	Large	
Per 100 feet	$2.15	2.70	3.25	net

Terry's Wrought Iron, 5¢ ⅌ foot ... net

Rakes.
Cast Steel ... dis 60&10 @ 60&10&5 %
Malleable ... dis 60&10 @ 60&10&5 %

Razors.
J. R. Torrey Razor Co ... dis 20 %
Wostenholme & Butcher ... $10 to £, dis 10 %

Razor Strops.
Genuine Emerson ... dis 60 %
Imitation Emerson ... ⅌ doz $2.00, dis 20&10&10 %
Torrey's ... dis 20 %

Rivets.
Combination Goods ... dis 40 %
Outside Goods ... dis 40&5@40&7½ %
Copper Rivets and Burrs ... dis 60 @ 60&5 %

Nos.	7	8	9	10	11	12	13	14	15
⅌ ℔	.49¢	50¢	52¢	54¢	56¢	58¢	60¢	65¢	70¢

Rivet Sets ... dis 50&2 %

Rods.—Stair, Brass ... dis 25 %
Stair, Black Walnut ... 60¢ ⅌ doz, dis 10 %

Rollers.—Barn Door, Sargent's list.. dis 60&10&10 %
Acme (Anti-Friction) ... dis 55 %
Union Barn Door Roller ... dis 70 %

Rope.—Mnf'rs list, Jan. 19, 1885 ... dis 1¢ ⅌ ℔
Manila ... ½ inch and larger ⅌ ℔ 14½¢
Manila ... ⅜ inch ⅌ ℔ 15 ¢
Manila ... ¼ and 5-16 inch ⅌ ℔ 15½¢
Manila Tarred Rope ... ⅌ ℔ 14 ¢
Manila, Hay Rope ... ⅌ ℔ 14½¢
Sisal ... ½ inch and larger ⅌ ℔ 9 ¢
Sisal ... ⅜ inch ⅌ ℔ 10 ¢
Sisal ... ¼ and 5-16 inch ⅌ ℔ 10 ¢
Sisal, Hay Rope ... ⅌ ℔ 8½¢

Rules.
Boxwood ... dis 80 @ 80&10 %
Ivory ... dis 55 @ 55&10 %

Sad Irons.
From 4 to 10, at factory ... ⅌ 100 ℔ $2.25 @ $2.50
Self-Heating ... ⅌ doz. $9.00 net
Self-Heating, Tailors' ... ⅌ doz. $18.00 net
Gleason's Shield and Toilet ... dis 25 %
Mrs. Pott's Irons, Double Pointed ... dis 35 @ 40 %
Mrs. Pott's Irons, Square Back ... dis 35 @ 40 %
Enterprise Star Irons, new list, July 20, 1882 ... dis 35 %
Combined Fluter and Sad Iron ... ⅌ doz. $15.00, dis 15 %
Chinese Laundry (N. E. Butt Co.) ... 8½¢, dis 15 %
New England ... 5¢, dis 15 %

Sand Paper and Emery Paper.
Baeder & Adamson's Flint. 00 to 1½ .. $4.50 ⅌ ream } dis 40@40&5 %
Baeder & Adamson's Flint, 2, 2½ & 3 ... 5.00 ⅌ ream }
Baeder & Adamson's Flint, assorted .. 4.75 ⅌ ream }
Baeder & Adamson's Star ... 3.75 ⅌ ream }
Bartles Best Flint, Nos. 00 to 1½ ... ⅌ ream $4.50 } dis 40@40&5 %
Bartles Best Flint, assorted ... ⅌ ream 4.50 }
Bartles Best Flint, Nos. 2 to 3 ... ⅌ ream 5.00 }
Bartles Best Flint, No. 3½ ... ⅌ ream 5.50 }
Columbia Flint, all Nos ... ⅌ ream 4.00 }
Madison Mills Flint, all Nos ... ⅌ ream 3.50 }
Emery Paper, 00 to 1½, $6.50; 2, $7.50; 2½, $9.50 ... dis 40 @ 40&5 %
Emery Cloth, B. A. & Co., 00 to 1½, $18; 2, $20; 2½, $24 ... dis 40 @ 40&5 %
Emery or Crocus Cloth, Sibley, 9x12 in., $16.00 } dis 20 %
Emery or Crocus Cloth, Sibley, 7x9 in., $10.50 }
New England, same list as B. & A. Flint ... dis 35&10 %
Sand Paper without brand ... ⅌ ream, $2.25 net

Sash Cord.
Common ... ⅌ ℔, 12½¢ @ 13¢ net
Patent ... ⅌ ℔, 15¢ @ 16¢ net
White Cotton Braided ... 32½¢ @ 34¢ ⅌ ℔ net
Common Russia Sash ... ⅌ ℔ 13¢
Patent " " ... " 15¢
Cable Laid Italian " ... " 26¢
India Cable Laid " ... " 14¢
Silver Lake, A Quality, White ... 50¢. dis 10&10 %
Silver Lake, A Quality, Drab ... 55¢. dis 10&10 %
Silver Lake, B Quality, White .. 50¢. dis 10&10&10@30 %
Silver Lake, B Quality, Drab .... 55¢. dis 10&10&10@30 %
Silver Lake, C Quality, White (only) ... 34¢ net.
Spring Lake, A Quality ... 50 @ 55¢. dis 10&10&5 %

Sash Locks.
Clark's No. 1, $10.00; No. 2, $8.00 ⅌ gross ... dis 33⅓ %
Ferguson's ... dis 33⅓ %
Morris ... dis 50&10 %
Morris' Triumph (revised list) ... dis 60 %
Walker's ... dis 10 %
Attwell Mfg. Co ... dis 33⅓ @ 40 %
Hammond's Window Springs ... dis 25 %
"Common Sense," Japanned, Coppered and Bronzed ... ⅌ gross $5.00 net
"Common Sense," Nickel Plated ... ⅌ gross $12.00 net
"Universal" ... dis 30 %
Kempshall's Gravity ... dis 60 %
Kempshall's Model ... dis 60@60&10 %
Corbin's Daisy ... dis 60&5@60&10 %
Payson's Perfect ... dis 50&10 &5 %
Hugunin's New and Improved Adjustable Sash Balances, list March, 1885 ... dis 33⅓ %
Hugunin's New Sash Locks, list March, 1885.. dis 33⅓ %
Stoddard "Practical" ... dis 10 %

Sash Weights.
Solid Eyes, in ton lots ... ⅌ ton, $19

Sausage Stuffers or Fillers.
Miles' "Challenge" ... ⅌ doz. $20, dis 40 %
Perry ... ⅌ doz. No. 1, $15; No. 0, $21. dis 40 %
Draw Cut No. 4 ... each, $30.00, dis 20 %
Enterprise Mfg. Co ... dis 25@20&10 %
Silver's ... dis 25 %

Saws
Disston's Circular, Mill and Cross Cut ... dis 45&10 %
Disston's Hand, Panel, Rip, &c ... dis 20&10 %
Atkins' Silver Steel Circular ... dis 40 %
Atkins' Selected Steel Circular ... dis 50 %
Atkins' Concaved Tooth Dexter X Cuts ... ⅌ foot 55 ¢
Atkins' C. S. X Cuts, Regular ... ⅌ foot 31 ¢
Atkins' Hollow Back X Cuts ... ⅌ foot 22 ¢
Wheeler, Madden & Clemson Mfg. Co.'s Hand ... dis 30 @ 30&5 %
W. M. & C. Champion X Cuts, Regular ... ⅌ foot 26¢
W. M. & C. X Cuts, Thin Back ... ⅌ foot 29¢
Simond's Circular ... dis 35 %
Simond's Crescent-Ground Cross Cuts, patent December 26, 1882 ... dis 25 %
Peace Circular and Mill ... dis 45&10 %
Peace Hand Panel and Rip ... dis 20&10 @ 20&10&5 %
Peace Cross Cuts, Standard ... ⅌ foot 25¢
Peace Cross Cuts, Thin Back ... ⅌ foot 28¢
Peace Band Saws, all widths ... dis 20&10 %
Richardson's Circular ... dis 45 %
Richardson's Mill ... dis 45 %
Richardson's Cross-Cuts, No. 1, 30¢; No. 2, 27¢; No. 3, 25¢.
Richardson's Hand Panel, Butcher and Web Saws ... dis 25&5 %
Barry's Circular ... dis 45 %

Saw Frames.
White, Vermont ... ⅌ doz $1.50, dis 25&10 %
Red, Polished and Varnished ... ⅌ doz $1.50, dis 10 %
Saw Rods ... $10 list dis 10&10 %

Saw Sets.
Stillman's Genuine ... ⅌ doz $5.00 and $7.75, dis 40&5 %
Stillman's Imitation .. ⅌ doz $3.25 and $5.25, dis 40&5 %
Common Lever ... ⅌ doz $2.00, dis 40&5 %
Leach's ... No. 0, $8.00; No. 1, $15.00, dis 15 %
Nash's ... dis 20&10 @ 20&10&5 %
Hammer, Hotchkiss ... $5.50, dis 10 %
Hammer, Bemis & Call Co.'s new Patent ... dis 30&5 %
Bemis & Call Co.'s Lever and Spring Hammer. dis 30&5 %
Bemis & Call Co.'s Plate ... dis 10 %
Bemis & Call Co.'s Cross Cut ... dis 12½ %
Aiken's Genuine ... $13.00, dis 50&10 %
Aiken's Imitation ... $8.00, dis 55 %
Hart's Patent Lever ... dis 20 %
Disston's, Star, $9. No. 15 Hammer, $5.50 ... dis 20&10 %
Morrill's.. No. 1, $15.00; Nos. 3 and 4, $24. ... dis 40&10 @ 40&10&5 %
Croissant (Keller). No. 1, $15.00; No. 2, $24.00, dis 40&10 %

Scales.
Hatch, Counter, No. 171 ... ⅌ doz $42.00, dis 50&5 %
Hatch, Tea, No. 161 ... ⅌ doz $15.00, dis 50&5 %
Union Platform, No. 1 ... $6.00, dis 60 %
Union Platform, No 2 ... $6.00, dis 60&5 %
Chatillon's Grocers ... dis 40 %
Chatillon's Eureka ... dis 25 %
Chatillon's Family Favorite ... dis 30 %
Family Universal, ⅌ doz, 12 ℔, $30.00; 24 ℔, $36.00, net
Family, Turnbull's ... dis 30 %
Scale Beams, List of January 12, 1882 ... dis
Scale Beams, Custer ... dis 25 %

Scrapers.
Adjustable Box Scraper (S. R. & L. Co.) $6.50, dis 20&10 %
Box, 1 Handle ... ⅌ doz $4.00, dis 10 %
Box, 2 Handle ... ⅌ doz $6.00, dis 10 %
Defiance Box and Ship ... dis 20&10 %
Foot ... dis 50&10 %
Ship, Common ... ⅌ doz $3.50 net
Ship, Providence Tool Co ... dis 10 %

Screen Corners.
Porter's Pat. Window and Door Frame ... dis 33⅓ %

Screw Drivers.
Douglas Mfg Co ... dis 20&10&10 %
Disston's ... dis 45&10 %
Disston's Patent Excelsior ... dis 45&10 %
Buck Bros ... dis 30 %
Stanley R. & L. Co.'s Varnished Handles ... dis 60&10 %
Stanley R. & L. Co.'s Black Handles ... dis 50&10 %
Sargent & Co.'s Nos. 1 & 20 Forged Blade .. dis 70&10 %
Sargent & Co.'s Nos. 40 & 30, Cast Steel. dis 55&10&10 %
Sargent & Co.'s No. 60, Round Blade ... dis 60&10&10 %
Knapp & Cowles' No. 1 ... dis 60&10&10 %
Knapp & Cowles' No. 1 Extra ... dis 50&10 %
Knapp & Cowles' No. 00 & 4 ... dis 40 %
Sets interchangeable ... ⅌ doz $18.00, dis 25 %
Champion ... dis 25 %
Clark's Patent ... dis 20&10 %
Crawford's Adjustable ... dis 30 %
Knapp & Cowles' Screw-Driver Bitts ... ⅌ doz 90¢

Screws.
Am. Screw Co.'s list, Jan. 1, 1885:
Flat Head Iron ... dis 80 %
Round Head Iron ... dis 75&10 %
Flat Head Brass ... dis 75&10 %
Round Head Brass ... dis 75 %
Japanned, list of Plain Screws ... dis 72½ %
Russell & Erwin list, Jan. 1, 1885:
Flat Head Iron ... dis 85 %
Round Head Iron ... dis 83⅓ %
Flat Head Brass ... dis 85 %
Round Head Brass ... dis 83⅓ %
Dayton Screw Co.'s list, January 15, 1885:
Flat Head Iron ... dis 33⅓ %
Round Head Iron ... dis 25 %
Fat Head Brass ... dis 40 %
Round Head Brass ... dis 33⅓ %
Brass and Silver Capped Screws ... dis 40 %
Lag or Coach ... dis 75&10 @ 80 %
Coach, Patent Gimlet Point ... dis 75 %
Bed ... dis 33⅓ %
Machine, Flat Head, Iron ... dis 60 %
Machine, Round Head, Iron ... dis 55 %
Bench, Iron ... dis 55&10 @ 55&10&10 %
Bench, Wood, Beech ... ⅌ doz $3.00, dis 10 %
Bench, Wood, Hickory ... dis 20&10 %
Hand, Wood ... dis 25&10 %
Hand Rail, Sargent's ... dis 66⅔&10 %
Hand Rail, Humason, Beckley & Co.'s ... dis 70 %
Hand Rail, Am. Screw Co ... dis 70 %

Scroll Saws.—Lester, complete, $10.00 ... dis 25 %
Rogers, complete, $4.00 ... dis 25 %

Scythe Snaths ... dis 40&5 %

Shears and Scissors.
American (Cast) Iron ... dis 75&10 @ 80 %
Pruning ... See Pruning Hooks and Shears
Barnard's Lamp Trimmers ... ⅌ doz $3.75
Tinners' ... dis 20&2 %
Seymour's, List, Dec., 1881 ... dis 60&10 %
Heinsch's, List, Dec., 1881 ... dis 60&10 %
Heinsch's Tailor's Shears ... dis 33⅓ %
Mass. Cutlery Co. St. Trimmers ... dis 80 %
Cast Steel Trimmers ... dis 80 %
Acme Cast Shears ... dis 10&10 %
Diamond Cast Shears ... dis 10 %
Clipper ... dis 10&10 %
Victor Cast Shears ... dis 75&10 %
Wiss, J., & Sons' list, Dec., 1881 ... dis 60&10 %
Wiss, J., & Sons' Tailors' Shears ... dis 50 %

Sheaves.
Sliding Door, M. W. & Co., list ... dis 66⅔&5&2 %
Sliding Door, R. & E., list ... dis 60&10&2 %
Sliding Door, Patent Roller ... dis 60&10&2 %
Sliding Door, Patent Roller, Hatfield's ... dis 70 %
Sliding Door, Russell's Anti-Friction ... dis 60&10&2 %
Sliding Door, Moore's Anti-Friction ... dis 60 %
Sliding Shutter, R. & E. list ... dis 60&10&2 %
Sliding Shutter, Sargent's list ... dis 66⅔&10 %
Sliding Shutter, Reading list ... dis 66⅔&10 %
Moore's Anti-Friction (Hanging) ... New list, dis 25 %

Ship Tools.—L. & I. J. White ... dis 20&5 %

Shovels and Spades.
Ames' Shovels, Spades, &c., Ames' brands ... dis 20 %
Some special brands of Ames' goods ... dis 20&10 %
Griffith's Black Iron ... dis 50&10 %
Griffith's Steel ... dis 60 @ 60&10 %
Griffith's Solid Cast Steel ... dis 20 %
Old Colony ... dis 15 %
Groom Shovel Co ... dis 20 @ 20&5 %
Hussey, Binns & Co ... dis 20 @ 20&5 %
Lehigh Mfg. Co ... dis 50&10 %
Payne Pettebone & Son, list Jan. 2, 1882 ... dis 50&5 %
R. T. Pettebone, Pat. Shovels, new list ... dis 50 %
R. T. Pettebone, Pat. Scoops, new list ... dis 20 %
Remington's (Lowman's Patent) ... dis 30 @ 30&10 %
Rowland's, Black Iron ... dis 50&10 %
Rowland's Steel ... dis 60&5 @ 60&10 %

Shovels and Tongs.
Iron and Brass Head, R. & E. list ... dis 60&10&2 %
Iron and Brass Head, P. S. & W ... dis 50&5&10 %
Polished Steel, new list ... dis 50&10&2 %

Sieves.
Buffalo Metallic, S. S. & Co ... dis 50&25 %

Slates.
Square Frames, by case ... dis 45 %

Spoke Shaves.
Iron ... dis 45 %
Wood ... dis 30 %
Bailey's (Stanley R. & L. Co.) ... dis 40&10 %
Stearns' ... dis 30&10 %

Spoke Trimmers.
Bonney's ... ⅌ doz $10.00, dis 50 %
Stearns' ... ⅌ doz $9.00, dis 20&10 %
Ives' ... No. 1, $15.00; No. 2, $12.00 ⅌ doz, dis 55&10 %
Douglass' ... ⅌ doz $9.00, dis 20 %

Spoons.
Basting, Central Stamping Co.'s list ... dis 33⅓ %
Solid Table and Tea, Central Stamping Company's list ... dis 33⅓ %
Britannia ... dis 60&10 %
Meriden Brit. Co., Rogers ... dis 50&5 %
Wm. Rogers Mfg. Co ... dis 50&5&5 %
Holmes, Booth & Haydens ... dis 50&10 %
Holmes & Edwards Silver Co ... dis 50&10&5 %
German Silver ... dis 40&10&5@50 %
Cast Steel, Silver Plated ... dis 40 %
H. & E. Silver Co. Steel Silver-Plated Teas, $15; Tables, $30 ... dis 50 @ 50&10 %
Tin (Cowles Hdw. Co) ... dis 10 %
Tin (Cowles Hdw. Co.), case lots ... dis 20 %

Squares.
Steel and Iron ... } dis 60&10 @
Nickel Plated ... } 60&10&5 %
Try Square and T Bevels ... dis 60&10 %
Disston's Try Square and T Bevels ... dis 45&10 %
Winterbottom's Try and Miter ... dis 20&10 %

Stocks and Dies ... dis 5&10 %
Lightning" Screw Plate ... dis 10 @ 10&10 %

Stone.
Hindostan No. 1, 6¢; Ax, 8¢; Slips, 10¢ ... dis 40 %
Sand Stone ... ⅌ ℔, 5¢, dis 33⅓&10 %
Washita Stone, Extra ... ⅌ ℔, 16½¢
Washita Stone ... No. 1, ⅌ ℔, 14¢
Washita Stone ... No. 2 ⅌ ℔, 10¢
Washita Stone Slips ... No. 1, ⅌ ℔, 27¢
Arkansas Stone, No. 1, 4 to 6 in ... ⅌ ℔, $1.35, dis 10 %
Arkansas Stone, No. 1, 6 to 9 in ... ⅌ ℔, $2.00, dis 10 %
Turkey Oil Stone (Chase) ... 4 to 8 in., ⅌ ℔, 60¢, dis 10 %
Turkey Slips (Chase) ... $1.75 ⅌ ℔, dis 10 %
Lake Superior (Chase) ... ⅌ ℔, 16¢, dis 10 %
Lake Superior Slips (Chase) ... ⅌ ℔, 30¢, dis 10 %
Grindstones, Family, Loring's ... dis 10 %

Stove Boards.
Buffalo Zinc, S. S. & Co ... dis 50 %

Stove Polish.
Joseph Dixon's ... ⅌ gro $6.00, dis 10 %
Gem ... ⅌ gro $4.50, dis 10 %
Gold Medal ... ⅌ gro $6.00, dis 25 %
"Mirror" ... ⅌ gro $6.00, dis — %
Lustro ... ⅌ gro $4.75 net
Ruby ... ⅌ gro $3.75 net
Rising Sun ... ⅌ gro $5.75 net
Dixon's Plumbago ... ⅌ ℔ 8¢ net
Boynton's Noon Day, ⅌ gro, No. 1, large, $5.50; No. 2 small, $3; No. 3, medium, $4.

Tacks, Brads, &c.
New List, Sept. 1, 1882
Tinned Swedes Tacks ... dis 30 %
Tinned American Tacks ... dis 30 %
Swedes Tacks, all kinds ... dis 30 %
American Cut Tacks ... dis 30 %
Copper Tacks and Nails ... dis 30 %
Swedes Hungarian Nails ... dis 35 %
Gimp and Lace Tacks ... dis 30 %
Gimp and Lace Tacks, Tinned ... dis 30 %
Finishing Nails ... dis 25 %
Trunk and Clout Nails ... dis 25 %
Common and Patent Brads ... dis 20 %
Basket Nails ... dis 20 %
Brush Tacks ... dis 20 %
Leathered Carpet Tacks ... dis 20 %
Cigar Box Nails ... dis 20 %
Chair Nails ... dis 20 %
(Ext. 10&2@10&10&2 % on all.)
Steel Carpet Tacks ... dis 50&10&2 %
Double-pointed Tacks ... dis 75&10 @ 75&10&5 %
Wire Carpet Nails ... dis 50 %
Wire Carpet Nails, R. & E. Mfg. Co ... dis 40&10 %
Steel Wire Brads, R. & E. Mfg. Co ... dis 40&10 %

Tap Borers.
Common and Ring ... dis 20&10 %
Ives' Tap Borers ... Nos. 1, 2, 4—dis 15&10 %
Ives' Tap Borers ... Nos. 13, 14—dis 25&10 %
Enterprise Mfg. Co ... dis 20&10 %
Clark's ... dis 33⅓&35 %

Tapes, Measuring.
American ... dis 25&10 %
Spring ... dis 40 %
Chesterman's ... Regular list dis 25 %

Thermometers.
Tin Case ... dis 80 @ 80&5 %

Tinners' Shears, &c.
Shears and Snips (P. S. & W.) ... dis 20&2 %
Punches—See Punches.

Tinware.
Stamped, Central Stamping Co ... dis 33⅓ %
Japanned, Central Stamping Co ... dis 33⅓ %
Stamped, S. S. & Co ... Net prices
Pieced, S. S. & Co ... dis 60 %
Japanned, S. S. & Co ... dis 25&10 %

Transom Lifters.
Wollensak's Patent ... dis 35 @ 35&5 %
Reiher, Imp. Lifter, list, Oct., 1883 ... dis 35&10 %
Excelsior ... dis 50&10&2 %

Tobacco Cutters.
Enterprise Mfg. Co. (Champion) ... dis 20&10 %
Wood Bottom ... ⅌ doz $10.00, dis 30&10 %
All Iron ... ⅌ doz $4.50 net
Nashua Lock Co.'s ... ⅌ doz $18.00 dis 50@55 %
Wilson's ... dis 55 %
Clipper (Sargent & Co.) ... ⅌ doz $24, dis 50&10&10 %
Acme ... ⅌ doz $20.00, dis 40 %

Traps.
Game, Newhouse ... dis 35 %
Game, Oneida Pattern ... dis 60&10&10 %
Game, Blake's Patent ... dis 40&10 %
Mouse, Wood, Choker ... ⅌ doz holes, 15¢
Mouse, Round Wire ... ⅌ doz $1.50, dis 10 %
Mouse Cage, Wire ... ⅌ doz $2.50, dis 10 %
Mouse Catch-'em-alive ... ⅌ doz $2.50, dis 15 %
Mouse, "Bonanza" ... ⅌ gross $10 net
Mouse, Delusion ... ⅌ gross $18.00, dis 10 @ 10&5 %
Rat, "Decoy" ... ⅌ doz $10.00, dis 10 %

Trowels
Lothrops' Brick and Plastering ... dis 20&10 %
Reed's Brick and Plastering ... dis 15 %
Disston's Brick and Plastering ... dis 20&10 %
Peace's Plastering ... dis 25 %
Clement & Maynard's ... dis 20 %
Rose's Brick ... dis 15 %
Brade's Brick ... dis 25 %
Worrall's Brick and Plastering ... dis 20 %
Garden ... dis 70 %

Triers.
Butter and Cheese ... dis 25 %

Trucks, Warehouse, &c.
Penfield Block Co.'s list, 1882 ... dis 40 %

Twine.

	BC.	B.
No. 12, Flax Twine, ¼ and ½ ℔ Balls	18¢	20¢
No. 18, " " ¼ and ½ "	17¢	18¢
No. 36, " " ¼ and ½ "	17¢	18¢
No. 264, Mattrass, ¼ and ½		36¢
Chalk Line, Cotton, ½ ℔ Balls		28¢
Mason Line, Linen, ½ "		55¢
2-Ply Hemp, ¼ and ½ ℔ Balls (Spring Twine)		14¢
3-Ply " 1 ℔ Balls		14¢
3-Ply " 1½ ℔ Balls		13¢
Cotton Wrapping, 5 Balls to ℔		14¢ @ 20¢
2, 3, 4, and 5 Ply Jute, ½ ℔ Balls		11¢
Wool		6¢ @ 6½¢
Cotton Mops—6, 9, 12 and 15 ℔ to doz		17¢

Vises.
Solid Box ... dis 50 @ 50&10 %
Parallel, Fisher & Norris Double Screw ... dis 15&10 %
Parallel, Stephens' ... dis 25 %
Parallel, Parker's ... dis 20 @ 25 %
Parallel, Wilson's ... dis 55 %
Parallel, Howard's ... dis 40 %
Parallel, Bonney's ... dis 40 %
Parallel, Merrill's ... dis 15@20 %
Parallel, Sargent's ... dis 60&10 %
Parallel, Backus and Union ... dis 40 %
Parallel, Double Screw Leg ... dis 15&10 %
Parallel, Prentiss ... dis 25&5 %
Parallel, Simpson's Adjustable ... dis 40 %
Saw Filers, Bonney's, Nos. 2 & 3 .. ⅌ doz $15.00, dis 40 %
Saw Filers, Stearn's ... dis 20&10 %
Saw Filers, Hopkins' ... ⅌ doz $17.50, dis 10 %
Saw Filers, Reading ... dis 40&10 %
Saw Filers, Wentworth ... dis 20&10 %
Cowell Hand Vises ... dis 20 %
Richardson's Vise and Anvil ... dis 25 %

Washer Cutters.
Smith's Patent ... ⅌ doz $12.00, dis 20&10&10 %
Johnson's ... ⅌ doz $11.00, dis 33⅓ %
Penny's ... ⅌ doz Pol. $14; Jap'd, $16 .. dis 55 %
Appleton's ... ⅌ doz $16.00, dis 60&10 %
Bonney's ... dis 30&10 %

Washers.—See Nuts and Washers.

Well Wheels—8 in., $1.85; 10 in., $2.15; 12 in., $3

Wire.
Brass and Copper, new list, Jan. 18, 1884 ... dis 30 %
Market, Bright and Annealed, Nos. 0 to 18 ... dis 70&5 %
Market, Coppered ... dis 65&5 %
Market, Galvanized ... dis 60&5 %
Market, Tinned, Tinned list ... dis 60&5 %
Stone, Bright and Annealed Nos. 19 to 26 ... dis 70&5 %
Stone, Bright and Annealed Nos. 27 to 36 ... dis 75&5 %
Stone, Galvanized, Nos. 19 to 30 ... dis 55&5 %
Stone, Tinned, Tinned list ... dis 60&5 %
Tinned Broom Wire ... dis 65&5 %
Cast Steel Wire ... dis 55&5 %
Annealed Fence, Nos. 8 & 9 ... dis 70&5 %
Annealed Grape, Nos. 10 to 14 ... dis 70&5 %
Fence Staples ... ⅌ ℔ 3¾ @ 4 ¢
Fence Staples, Galvanized ... ⅌ ℔ 6 ¢
Stubs' Steel Wire ... $6.00 to £, dis 30 %
Barb Fence ... See Trade Report
Barb Wire Safety Guards ... ⅌ 1000 $9.00, dis 25 %
Wire on Spools ... dis 65 %
Steel Music Wire, Nos. 7 to 30 ... 55¢ ⅌ ℔
Picture Wire ... dis 60&10 %
Wire Clothes Lines. See Lines.
Wire Cloth, green, drab and black, ⅌ 100 sq. ft ... $2.00 net @ dis 5 @ 10%

Wrenches.—American Adjustable ... dis 45 %
Baxter's Adjustable "S" ... dis 33⅓ %
Baxter's Diagonal ... dis 35&10 %
Coes' Genuine ... cash in 10 days, dis 60&3 %
Coes' "Mechanics'" ... dis 60&10&3 %
Coes' Pattern, Malleable ... dis 75&15 %
Coes' Pattern, Wrought ... dis 75&5 @ 75&10 %
Girard Standard ... dis 65&10 %
Girard Agricultural ... dis 75 @ 75&10 %
Bemis & Call's Patent Combination ... dis 30&5 %
Bemis & Call's Merrick's Pattern ... dis 35 %
Bemis & Call's Brigg's Pattern ... dis 25 %
Bemis & Call's Cylinder or Gas Pipe ... dis 40&5 %
Bemis & Call's No. 3 Pipe ... dis 35&5 %
Aiken's Pocket (Bright) ... $6.00, dis 50&10 %
The Favorite Pocket (Bright) ... ⅌ doz $4.00, dis 40 %
Webster's Patent Combination ... dis 25 %
Boardman's ... dis 25@25&10 %
"Always Ready" ... dis 25&5 %
Alligator ... dis 40&10 %
Donohue's Engineer ... dis 25 %

Wringers.

	Per doz.	
Novelty, for Common Tubs, No. 2, 10-inch	$30.00	dis $3 ⅌ doz.
Novelty, for Common Tubs, No. 3, 11-inch	34.50	
Excelsior, for Stationary Tubs, No. E, 10-inch	39.00	
Excelsior, for Stationary Tubs, No. F, 11-inch	43.50	
Excelsior, with Folding Bench, No. A, 10-inch	48.00	
Excelsior, with Folding Bench, No. B, 11-inch	52.50	
Universal, No. 2½	30.00	
Universal, No. 2	33.00	
Universal, No. 1¼	34.50	
Universal, No. 1½	39.00	
Universal, No. 1	57.00	
Universal, for Set Tubs, A 2½	39.00	
Universal, for Set Tubs, E 1½	48.00	
Universal, for Set Tubs, C 1	66.00	
Adams & Co. No. 8	30.00	
Peerless No. 2½	30.00	
Peerless No. 3½	34.50	
No. 99 Improved 2½	30.00	
"Metropolitan," No. 2	33.00	
"Metropolitan," No. 2½	30.00	

Wrought Staples, Hooks, &c.—See Hooks.

WHOLESALE METAL PRICES, March 19, 1885.

METALS.

IRON.—DUTY: Bars, 8-10¢ to 1 1-10¢ ₩ lb; provided that no Bar Iron shall pay a less rate of duty than 35 %. Sheet, 1 1-0¢ to 1 5-10¢ ₩ lb. Band, Hoop and Scroll, 1¢ to 1 4-10¢ ₩ lb. Railroad Bars weighing more than 25 lb ₩ yard, 7-10¢ of 1¢ ₩ lb.

Standard American Pig Iron.

Foundry No. 1 X	₩ ton	$18.00 @ 19.00
Foundry No. 2 X	₩ ton	17.00 @ 18.00
Gray Forge	₩ ton	16.00 @ 17.00

No. 1 Scotch Pig Iron.

Carnbroe	₩ ton	19.50 @ 20.50
Coltness	₩ ton	@ 21.50
Shotts	₩ ton	21.50 @ 22.00
Glengarnock	₩ ton	19.50 @ 20.00
Gartsherrie	₩ ton	21.00 @ 21.50
Langloan	₩ ton	21.50 @ 22.00
Summerlee	₩ ton	20.50 @ 21.00
Dalmellington	₩ ton	19.00 @ 19.25
Eglinton	₩ ton	18.50 @ 19.00
Clyde	₩ ton	19.00 @ 19.25

Rails

Steel, at Eastern mills	₩ ton	@ 27.00
Old Rails, Ts	₩ ton	17.00 @ 17.50

Scrap.

Wrought, ₩ ton, from yard ..... 18.25 @ 19.00

Bar Iron from Store.

Common Iron:
¾ to 1 in. round and square ... ₩ lb 1.6 @ 1.9¢
1 to 6 in. x ¾ to 1 in ... ₩ lb 1.6 @ 1.9¢
Refined Iron:
¾ to 2 in. round and square ... ₩ lb 1.9 @ 2.2¢
1 to 6 in. x ¾ to 1 in ... ₩ lb 1.9 @ 2.2¢
1 to 6 in. x 1¼ and 5-16 ... ₩ lb 2.1 @ 2.40¢
Rods—¾ and 11-16 round and sq. ... ₩ lb 2. @ 2.30¢
Bands—1 to 6x3-16 to No. 12 ... ₩ lb 2.3 @ 2.50¢
"Burden's Best" Iron, base price ... ₩ lb 3¢
Burden's "H. B. & S." Iron, base price ... ₩ lb 2.6¢
Norway Nail Rods ... 5½ @ 6¢

Sheet Iron from Store.

Nos.	Common American.		R. G. Cleaned.
10 to 16	₩ lb 2.70	@ 3 ¢	3½¢
17 to 20	₩ lb 3	@	3¾¢
21 to 24	₩ lb 3	@	3¾¢
25 and 26	₩ lb 3.25	@	4 ¢
27	₩ lb 3.37½	@	4 ¢
28	₩ lb 3.50	@	4¼¢

	B B.	2d qual.
Galvanized, 10 to 20	₩ lb 5 ¢	4½¢
Galvanized, 21 to 24	₩ lb 5½¢	5 ¢
Galvanized, 25 to 26	₩ lb 6 ¢	5½¢
Galvanized, 27	₩ lb 6½¢	6 ¢
Galvanized, 28	₩ lb 7 ¢	6½¢
American Russia	₩ lb A, 10¢	B, 9¢
Russia	₩ lb 10½¢ @ 11 ¢	
American Cold Rolled B. B.	₩ lb 5 ¢ @ 7 ¢	

Iron Wire. *See Wire.*

STEEL.—DUTY. Ingots, Bars, Sheets, &c., valued at 4¢ ₩ lb or less, 45 % ad. val.; valued above 4¢ and not above 7¢ ₩ lb, 2¢ ₩ lb; valued above 7¢ and not above 10¢ ₩ lb, 2¾¢ ₩ lb; valued above 10¢ ₩ lb, 3½¢ ₩ lb. *Extras.*—Steel Bars, Rods, &c., cold hammered or polished, in any way in addition to ordinary hot rolling, 1¼¢ ₩ lb in addition to above; Steel Circular Saw Plates, 1¢ ₩ lb in addition to the above.

American Cast Steel.

For American Steel, see Pittsburgh quotations.

English Steel.

Best Cast	₩ lb 15¼¢
Extra Cast	₩ lb 16¼ @ 17¼¢
Circular Saw Plates	₩ lb 14¼¢
Round Machinery, Cast	₩ lb 10½¢
Swaged, Cast	₩ lb 16½¢
Best Double Shear	₩ lb 15½¢
Blister, 1st quality	₩ lb 14 ¢
German Steel, Best	₩ lb 10 ¢
2d quality	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality	₩ lb 15½¢
2d quality	₩ lb 14½¢
3d quality	₩ lb 12½¢

TIN.—DUTY Plates, Sheets, Tagger and Terne, 1¢ ₩ lb; Bars, Block and Pigs free.

Banca	₩ lb 20 ¢	@ 20¼¢
Straits	₩ lb 18¼¢	@ 18¾¢
English	₩ lb 18¾¢	@ 19 ¢
Bar	₩ lb 19 ¢	@ 20 ¢

Charcoal Tin Plates.

I C 10x14 225 sheets	₩ box	$5.12½ @	5.25
I C 12x12 225 sheets	"	5.50 @	5.75
I C 20x28, 1 "	"	10.75 @	12.00
I X 10x14 225 sheets	"	6.25 @	7.00
I X 12x12 225 sheets	"	6.50 @	7.25
I X 14x20, 112 "	"	6.50 @	7.25
D C 12½x17 100 "	"	5.00 @	5.25
X 12½x17 100 "	"	6.25 @	6.75
each additional X add	"	1.25 @	1.50

Coke Tin Plates.

	Best.	Ordinary.
I C 10x14 }	$5.00	$4.60 @ 4.80
I C 14x20 }		
I C 12x12	5.00	4.75 @ 5.00
I C 10x20, gutters, 225 sheets	8.00	7.25
C 20x28, 112 sheets	....	10.50

Terne Plates.

	Prime Char. 2d. quality	Coke.
I C 14x20 M. F.	$7 @ 7.12½	....
I C 14x20 Old Process	....	$6.50
I C 20x28 "	....	13.75
I C 14x20, ...	$4.62½ @ 4.75 $4.50	4.40 @ 4.50
I X 14x20 ..	6.00 @ 6.12½	
I C 20x28	9.50 @ 9.75 9.25 @ 9.87½	8.75 @ 9.00
I X 20x28	12.50 @	
I C 20x200 ...	13.50 @	

Tin Boiler Plates.

IXX 14x26, 2 sheets for No. 7, 112 sheets	@ $12.00
IXX 14x28, 2 " " No. 8, "	@ 13.00
IXX 14x31, 2 " " No. 9, "	@ 15.00

COPPER.—DUTY: Pig, Bar and Ingot, 4¢; Old Copper, 3¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem.

Ingot, Lake	₩ lb	11¾¢ @ 11¾¢
Ingot, Baltimore	"	11 ¢ @ 11¼¢
Ingot Anchor	"	11 ¢ @ 11¼¢
Braziers' Copper, ordinary sizes, 16 oz. ₩ sq. ft. and over		@ 17 ¢
Braziers' Copper, ordinary sizes, under 16 oz. and over 12 oz. ₩ sq. ft.	"	@ 18 ¢
Braziers' Copper, 10 oz. and 12 oz. ₩ sq. ft.	"	@ 21 ¢
Lighter than 10 oz. ₩ sq. ft.		@ 24 ¢
Circles less than 84 in. in diam.	"	@ 23 ¢
" 84 in. diam. and over	"	@ 24 ¢
Segment and Pattern Sheets	"	@ 22 ¢
Locomotive Fire-Box Sheets	"	@ 20 ¢
Sheathing Copper, over 12 oz. ₩ sq. ft.	"	@ 16 ¢
Bolt Copper	"	@ 17 ¢
Copper Bottoms	"	@ 18 ¢
Nickel-Plated Sheathing	"	@ 35 ¢
" " for boilers	"	@ 37 ¢
Plating extra	" 25 ¢	@ 37 ¢
Flat Copper Boiler Bottoms or Pit Bottoms, cut to special sizes	"	@ 21 ¢

Tinning.

14x48, by the case	₩ sheet, 8¢
4x48, less than case	" 8¢

For tinning both sides, double the above amount.

O'Neill's Patent Planished Copper.—Net.

14x48

14 and 16 oz. and heavier	30¢ By the case, ₩ lb 29¢
12 oz. and lighter	32¢ " " " 31¢

Boiler Sizes.

7 in., 14x52. 8 in., 14x56. 9 in., 14x60.

14 and 16 oz. and heavier	32¢ By the case, ₩ lb 31¢
12 oz.	" " " 34¢

(And all sizes not over 20 in. wide.)
24x48 and 30x60.

14 and 16 oz. and heavier	₩ lb 34¢
12 oz.	" 37¢

Copper Wire.—(*See Wire.*)

Sheathing Metal.

Yellow Sheathing Metal, ₩ lb ..... 20 @ ....

BRASS AND GERMAN SILVER.

Brown & Sharpe's Gauge the Standard for Metal; Old English Gauge the Standard for Wire.

Brass Manufacturers' Price List, January 17, 1884 ..... dis. 20 @ 30 %

LEAD.—DUTY: Pig, $2 ₩ 100 lb; Old Lead, 2¢ ₩ lb; Pipe and Sheet, 3¢ ₩ lb.

American	3.80 @ 4½¢
Bar	4½ @ 4¾¢
Pipe	5¾¢
Block Tin Pipe	40¢
Tin Lined Pipe	15¢, dis 20 %
Sheet	6¾¢, dis 20 %
Shot	Drop, 6¢; Buck, 7¢
Chilled Shot	7¢

ANTIMONY.

Hallett's	₩ lb 10½ @ 10¾¢
Cookson	" 10¾ @ 11 ¢

SPELTER—Duty: Pigs, Bars and Plates, $1.50 ₩ 100 lbs.

American, cash	4⅝ ¢ @ 5¢
Bergenport	9¢

ZINC—Duty: Pig or Block, $1.50 ₩ 100 lbs. Sheet, 2½¢ ₩ lb.

600 lb casks	5⅛ @ 5.3¢
Zinc.—Open	5¾ @ 6¼¢
Zinc Tubing	dis. 10 @ 20 %

Zinc Tubing—Dis. 25 %.

Plain	.27
Fancy	.32
Scotch and Extra Patterns	.36

BABBITT METAL.

N. P. U	₩ lb 6 @ 7½¢
X	.10¢
X X	.15¢
J. B	.20¢

WIRE.

Market Wire.—Put up in 68 lb bundles.

Nos.	00 to 9,	10,	11,	12,	13, 14,	15, 16,	17,	18.
	10	11	11¼	12½	14	15	16	
Bright Market Wire							dis 70&5 %	
" Charcoal							dis 50 %	
" Bale Wire, Nos. 7 to 12							dis 70 %	
Annealed Market Wire							dis	70&5 %
" Fence Wire, Nos. 8 and 9								
" Grape Wire, Nos. 10 to 14								
Coppered Market Wire							dis.	65&5 %
" Bale Wire, Nos. 7 to 12							dis.	65 %
Galvanized Market Wire							dis	60&5 %
" Fence Wire								

Stone or Weaving Wire.

Nos.	16	17	18	19	20	21	22	23	24	25	26
Cents	14	15	16	19	20	21	22	23	24	25	26
Nos.	27	28	29	30	31	32	33	34	35	36	..
Cents	28	29	30	32	33	35	37	40	45	55	..

Nos. 16 to 18	dis. 70 @ 70 & 5 %
19 to 25	" 70 & 5 %
27 to 36	" 75 @ 75 & 5 %
Galvanized Stone Wire	" 55 & 5 %

Steel Wire.

Cast Steel, Steel Wire list ..... dis. 55&5 %

Brass and Copper Wire.

Old English Gauge the Standard.—Dis 20 @ 30.

	Common High Brass	Low Brass	Gilding Bronze and Copper.
All Nos. to No. 16, inclusive	$0.22	$0.26	$0.30
No. 17 and 18	.23	.27	.31
" 19 and 20	.24	.28	.32
" 21	.25	.29	.33
" 22	.26	.30	.34
" 23	.28	.32	.36
" 24	.30	.34	.38
" 25	.32	.36	.40
" 26	.35	.39	.43
" 27	.38	.42	.46
" 28	.42	.46	.51
" 29	.45	.49	.54
" 30	.48	.52	.62
" 31	.51	.55	.67
" 32	.55	.59	.73
" 33	.59	.63	.82
" 34	.64	.68	.95
" 35	.70	.74	1.30
" 36	.76	.80	1.50
" 37	1.00	1.04	1.79
" 38	1.30	1.34	2.00
" 39	2.00	2.00	3.25
" 40	2.60	2.60	5.75

Spring Wire, 2 cents per pound advance. Whitened Wire, 3 cents per pound advance. Flat, Square and Half-Round Wire, 4 cents advance on Round Wire. Fancy Wire, not less than 10 cents advance on Round Wire. Spooling on one-pound Spools, 12 cents per pound extra. Spooling on ten-pound Spools or more, 2 cents per pound extra.

MISCELLANEOUS TINNERS' STOCK.

Solder.

½ & ½, Warranted	.12 @ 12½¢
Extra	10¾ @ 11 ¢
No. 1 Refined	9¾ @ 10 ¢
No. 2 "	@ 9½¢
Extra wiping	9½ @ 9¾¢

Rivets.

Iron and Tinned, new list, Dec. 10, 1881	dis. 40 %
In bulk, new list, Dec. 10, 1881	dis. 40 %
Copper Rivets and Burrs	dis. 50&10@60 %

Nos.	7	8	9	10	11	12	13	14	15
₩ lb.	49¢	50¢	52¢	54¢	56¢	58¢	60¢	65¢	70¢

Stove Bolts.

American Screw Co.'s	dis. 65 %
R. B. & W	dis.
R. & E. Mfg. Co	dis 65 %

FRENCH GLASS.

Prices current per box of 50 square feet.
List, September 8, 1884.

Single Thick.

Sizes.	1st.	2d.	3d.	4th.
6 x 8 to 10 x 15	$9.50	$8.50	$7.50	$7.00
11 x 14 to 16 x 24	10.50	9.50	8.75	8.00
18 x 22 to 20 x 30	12.50	11.00	10.25	9.50
15 x 36 to 24 x 30	14.00	12.75	11.00	
26 x 28 to 24 x 36	15.00	13.50	11.75	
26 x 36 to 26 x 44	16.00	14.50	12.25	
26 x 46 to 30 x 50	17.50	16.25	13.75	
30 x 52 to 30 x 54	19.00	17.00	15.00	
30 x 56 to 34 x 56	20.00	18.00	16.00	
34 x 58 to 34 x 60	22.00	20.00	18.00	
36 x 60 to 40 x 60	24.00	22.00	20.00	

Double Thick.

Sizes.	1st.	2d.	3d.	4th.
6 x 8 to 10 x 15	$12.00	$10.75	$10.00	$9.00
11 x 14 to 16 x 24	14.00	12.75	11.75	10.7
18 x 22 to 20 x 30	17.00	15.50	14.50	
15 x 36 to 24 x 30	18.50	17.00	15.00	
26 x 28 to 24 x 36	20.00	18.00	16.00	
26 x 36 to 26 x 44	21.25	19.75	17.00	
26 x 46 to 30 x 50	23.50	21.25	18.75	
30 x 52 to 30 x 54	24.50	22.25	20.25	
30 x 56 to 34 x 56	26.50	24.50	22.25	
34 x 58 to 34 x 60	29.00	27.00	25.00	
36 x 60 to 40 x 60	32.00	30.00	28.00	

Sizes above—$15 per box extra for every 5 inches. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket. An additional 10 per cent. will be charged for all Glass more than 40 inches wide. Discount 60&20 to 70 & 5 per cent.

PAPER STOCK, &c.

(Dealers' Selling Prices.)

	Cents	₩ lb.
White Shirt Cuttings, No. 1	7 @	7¼
" " No. 2	5½ @	6
Mill Assorted Whites	5 @	5½
Unbleached Muslins	5¾ @	6
City Whites, No. 1	4¾ @	4¾
No. 2 Whites	2½ @	2¾
New Canton Flannels	5 @	5½
New Seconds, light	3¾ @	4
" dark	2¾ @	3
Cotton Canvas	4¾ @	5
Linen Canvas No. 1	4½ @	4¾
Seconds, City No. 1	1½ @	1¾
Seconds, City No. 2	1¼ @	1¾
Colors, ₩ cwt	40 @	50
Manila Rope	3 @	3¼
" Tarred	2½ @	2¾
Gunny Bagging, No. 1	1¾ @	2
" No. 2	1½ @	1¾
Kentucky Bagging	4 @	...
Burlap Bagging, No. 1	1¾ @	2
Tar Shakings	1¾ @	2
Hemp Twine Stock	3¾ @	4
Hard White Shavings, No. 1	3¾ @	4
Soft White Shavings, No. 1	3½ @	3¾
White Shavings, No. 2, Soft	2½ @	2¾
Mixed Shavings, part White	2¼ @	2½
Ledger and Writing	2¾ @	3
Solid Stock	1¾ @	2
Book Stock, No 1, light	1 @	1¼
Old Newspapers	1¼ @	1½
Pure Manilas	1¾ @	
Bogus Manilas and Hardwares	⅝ @	1
Commons, ₩ 100 lb	40 @	50
Binders' Board Cuttings	½ @	1
Straw Board Cuttings, ₩ cwt	40 @	50

PAINTS, OILS, &c.

Paints.

Black, Lamp—Coach Painters'	₩ lb 22 @ 24¢
" Ordinary	6¢
Black Ivory Drop, fair	12 @ 15¢
" " best	23¢
Black Paint, in oil	kegs, 8¢; assorted cans, 11¢
Blue, Prussian, fair to best	40 @ 55¢
" " in oil	45 @ 55¢
" Chinese dry	70¢
" Ultramarine	18 @ 30¢
Brown, Spanish	11¢
" Van Dyke	10 @ 12¢
Green Chrome	15 @ 23¢
" " in oil	14 @ 18 @ 25¢
" Paris	good, 20¢; best, 25¢
" " in oil	good, 30¢; best, 35¢
Iron Paint, Bright Red	₩ lb 2¼¢
" Brown	" 1¼¢
" Purple	" 3¢
" Purple Ground in oil, Bright Red	" 6¼¢
" " " Red	" 5½¢
" " " Brown	" 5½¢
" " " Purple	" 6¢
Mineral Paints	2 @ 4¢
Orange Mineral	10¢
Red Lead, American	6½¢
" Venetian (Eng.) dry	$1.65 @ $1.70
" " in oil	asst'd cans, 11¢; kegs, 8¢
" Indian Dry	9 @ 12¢
Rose Pink	10 @ 13
Sienna, American Raw, powdered	4¢
" Burnt, powdered	4½¢
" " in oil	10 @ 16 @ 20¢
" Raw	11 @ 15 @ 25¢
Umber, Burnt, powdered	4 @ 8¢
" " in oil	9 @ 12 @ 15¢
" Raw, powdered	4 @ 7½¢
" " in oil	9 @ 12 @ 15¢
Vermilion, Chinese	56 @ 60¢
" English	15¢
" American, Common	6¢
White Lead, American, pure dry	6¢
" " " in oil	6¢
White Paris, English Prime	2 @ 2½¢
Yellow Ochre, French	$1.75
" " " in oil	asst'd cans, 11¢; kegs, 8¢
" " Vermont	In casks, 1½¢
Yellow Chrome	17 @ 27¢
" " in oil	14 @ 18 @ 25¢
Zinc White, American No. 1, dry	5 @ 6¢
" " No. 1, in oil	9¢
" French (Paris Dry)	5½ @ 7½¢
" " in oil	10 @ 11¢

Oils.

Bleached Whale, ₩ gal	65¢
" Sperm	$1.05
" Elephant	68¢
Drilling	40¢
Empire Cylinder Oil	65¢
Engine	50¢
Fish Oil, Pressed	32 @ 34¢
Lard, Prime	59¢
" No. 1 Extra	55¢
Linseed, Raw, in casks and bbls	52 @ 54¢
" Boiled, " "	55 @ 57¢
Machinery	40¢
Miners' Oil	35 @ 45¢
Neatsfoot	57 @ 65¢
Signal	60¢
Tallow	60 @ 64¢
West Virginia	8 @ 12¢

Sundries.

Asphaltum, Cuban	6½ @ 9½
" Trinidad Refined	₩ ton, $3.20 @ $3.25
Benzine	₩ gal. 9 @ 10¢
Chalk	½ @ 1¢
" Block	¾¢
Crucibles No. 14 and upward, per number	3½¢
Dryers, Patent American	asst'd cans, 9¢; kegs, 7¢
Emery 300 lb kegs	4¢
" less than 300 lb	6¢
Frostings	40c
Glue, White	24 ₩ 35¢
" Sheet	20¢
Glaziers' Points, Zinc, ₩ box	$5.00
Gum, Copal	36¢
" Damar	25¢
" Shellac, English	30¢
" " " dark	25¢
Litharge	6½¢
Mineral Wool, ordinary, ₩ lb	1 @ 1½¢
" extra	3 @ 3½¢
Pumice Stone, selected Lumps	4 @ 6¢
" powdered	2¾ @ 3½
Pine Tar, bbls	$2 50
Pitch	$1.65
Plumbago E. I. Po., ₩ lb	4 @ 6¢
" American, ₩ lb	6 @ 10¢
" Gun Powder Glazing, ₩ lb	10¢
" Shot Polish ₩ lb	10¢
Putty, in bladders	2½¢
" in bulk	1¾ @ 2
Rosin—Common and Good—Strained	$1.55
" E & F	$1.60 @ $1.70
" G & H	$1.80 @ $1.95
" I & K	$2.35 @ $2.70
" M & N	$3.70 @ $4.20
Spirits Turpentine, ₩ bbl	32 @ 34¢
Stove Polish, Dixon's	₩ gross $5.50
" Rising Sun	" 5.50
" Gem	" 4.00
" Jet Black	" 3.00
Waste, No. 1 Cop	9¢
" No. 1 White Machine	9¢
" No. 2 White Machine	8½¢
" No. 1 Colored	6½¢
" No. 2 Colored	6¢
" Washed Machine	8½¢
Whiting, Spanish	9¢

INDUSTRIAL ITEMS.

CONNECTICUT.

The National Pipe Bending Company, of Birmingham, are making a coil of 2-inch brass pipe, containing 540 feet, for a paper mill at Collinsville, Mass., and 8 coils 1-inch pipe, each coil consisting of 350 feet, for use in refrigerator machines; also, two 500-horse-power feed-water heaters for an electric-light station in Boston, and one 100 horse-power feed-water heater for station at Norwich, Conn.

NEW YORK.

David M Nichols, Gouverneur Slip, New York City, has built two steel boilers for Piegrass & Piner's steam yacht. Length, 9½ feet; front, 6½ feet; hight, 9 feet 10 inches. John L. Sullivan, of New York City, is building powerful engines for her.

It is stated that the Albany and Rensselaer Iron and Steel Company, of Troy, contemplate the erection of a blast furnace on Island Park, in that city, the metal from which will be taken to their steel works in a molten state and used there. They at present own two furnaces—Columbia Furnace, at Hudson, Columbia County, and Fort Edward Furnace, at Fort Edward—but these are too remote from the works to permit of the use of the more direct process which they desire to employ.

The New York Safety Steam Power Company, of this city, are building the machinery of the yacht for W. H. Sterling, of the firm of Motley & Sterling. She will have a safety steam-power engine with cylinder 8 x 9, and a speed of 12 miles per hour is guaranteed. Her vertical boiler will be of steel. The hull of this yacht will be built by Samuel Ayers, 37 Peck Slip, New York.

The Clinton, Bussey, McLeod and Co-operative stove foundries, at Troy, together have about 800 men at work, a force which will probably soon be increased, as they report the outlook brighter than for some months.

NEW JERSEY.

The New York Extraction Works, Limited, of Elizabeth, have recently built a new calcining kiln, and are now erecting a cupola.

Steel & Condit, of Jersey City, are making a boiler and engine for the large new steam dredge Dingler, which is intended for work at Colon. She is the sixth one built for Central America.

PENNSYLVANIA.

The interlocking switch and signal apparatus at Metropolitan Junction, Baltimore and Ohio Railroad, at Washington City, was finished so as to go into operation on March 3, operating the switches and home signals—the distant signals all remaining at danger—during the great rush of trains contingent on the inaugural ceremonies. The Baltimore and Ohio Railroad officials were pleased with the results secured by the apparatus, and also gratified that they were able to secure the completion of it in time. The erection of the work was begun on February 16, under the personal supervision of Mr. Geo. W. Parsons, superintendent of the switch and signal department of the Pennsylvania Steel Company, who remained on the ground during almost the entire time, assisted a portion of the time by Capt. A. G. Cummings, engineer of interlocking appliances. The completion of so extensive a system is believed to be without parallel in so short a time. The system embraces several novel features in interlocking, as the situation was one that presented many difficulties, and it had been claimed by other parties in this line of business that this point could not be interlocked without having two signal towers, each with its own system of apparatus. The skill of Captain Cummings enabled him successfully to overcome all these difficulties, and his plan was so complete that it was effective for immediate use the moment the parts were in place, without any alteration or tinkering whatever.

The sheriff's sale of the Barree Forge and Furnace property in Huntingdon County, belonging to Mumper & Co., has been set aside by the court on account of the failure of the purchaser to comply with the terms of the sale. The price at which it was knocked down was $38,000. It will be resold.

A boiler explosion at the works of the American Tube and Iron Company, at Middletown, near Harrisburg, on March 12, wrecked the mill badly, causing damage to the extent of $15,000. Ten men were injured, two fatally.

It is probable that the iron works of P. L. Kimberly & Co., in Sharon, will begin operations in a few days. Their employees met last week to consider the situation, and after a full discussion passed the following resolution: "We, the employees of P. L. Kimberly & Co, are willing to go to work and to accept orders for goods on different stores for our pay. At the end of every month, if possible, the balance due us is to be paid in cash. If this is not practicable, the amount may be either traded out or left standing until the cash is forthcoming." A committee was appointed to present this to Mr. Kimberly and ascertain what action he would take in the matter. After reading the resolution he expressed himself as perfectly willing to do all in his power to start the mill, and that he thought the scheme was a good one. It is probable that under this arrangement, as above stated, the works will soon be again in operation.

The rolling mill of the Sharon Iron Company has resumed operations in all departments.

Rosena Furnace, at Newcastle, which has been for some time operated by Rhodes & Co., of Cleveland, the largest furnace in the Shenango Valley, has gone out of blast. It has averaged 100 tons a day for the last two years.

The Glasgow Iron Company, of Pottstown, have purchased a tract of 26 acres of land near their works, presumably with a view to extending the same.

The E. & G. Brooke Iron Company, of Birdsboro, have purchased a large and improved ore-crusher for their No. 2 Furnace; 1050 tons of nail-plate iron were heated last month in the mill of this company.

Mrs. Borie and Mr. White, of Philadelphia, who recently purchased the controlling interest in the Robesonia Furnace property from Mr. Ferguson, have decided to form a company under the Limited Partnership law, to be called the Robesonia Iron Company, Limited, and have contracted to sell one-half interest to Mrs. Margaret C. Freeman and Miss Sarah H. Coleman, of Cornwall. William C. Freeman, of Cornwall will have the practical management of the company's affairs.

Affairs with the brass molders at the Reading Hardware Works have been arranged, and the men have resumed work.

Messrs. J. E. Thropp & Co.'s Edge Hill Furnace, at Edge Hill, made, for the week ending February 28, 430 tons of iron. This is the largest yield made since the furnace was erected.

All departments of the works of the Pennsylvania Steel Company, at Steelton, were in operation last week.

The appropriation of $100,000 for the Haskell multicharge cannon experiments having passed both Houses of Congress, Colonel Haskell will soon visit Reading to make arrangements with the Reading Iron Works for the construction of another cannon.

Orr, Painter & Co., proprietors of the Reading Stove Works, will soon erect a fine five-story brick warehouse in Reading.

The indications are that no work will be done this year at the rolling mill of the Philadelphia and Reading Company, at Reading. The rolls have been sent to the works of the Montour Iron and Steel Company, at Danville, where fish plates are being made for the Philadelphia and Reading Company, and the engines and other machinery are being greased to prevent rust.

Neshannock Furnace, of the Crawford Iron and Steel Company, of New Castle, which is undergoing repairs, will blow in again in a week or two.

The Mellert Foundry and Machine Company, of Reading, have received the contract to furnish water-pipes to the city of Lancaster during the year ending April 1, 1886. The prices range from $27 to $31 per ton.

C. B. Grubb & Son, operating the St. Charles Furnaces, at Columbia, have announced a reduction of 10 per cent. in wages, which will probably be accepted by the men.

PITTSBURGH AND VICINITY.

The Phœnix Clay Pot Company are finding business brisk at their Brushton works. They have lately put a second story on all their new brick building to provide room, of which they were much in need, and they have also instituted other considerable improvements. They have now two pot-rooms, one 200 x 60 and one 100 x 50 feet in extent. They put in a new 40-horse-power engine last week, with pug mill and grinder. This firm will remove their office from 1006 Penn avenue to their works at Brushton on April 1.

The articles of association of the Pennsylvania Coal Company, Limited, were filed in the recorder's office last week. The capital stock is $15,000.

A strike took place last week among the laborers of Booth & Flinn, who are laying a line of gas-pipe for the Westinghouse Company through Sharpsburg. The firm attempted to supply the places of the strikers with Italians, but the move almost precipitated a riot, and the Italians were withdrawn. The strikers are still firm.

The United States marshal announces that he will on March 26 offer for sale all the property of the Manchester Iron and Steel Company, including Edith Furnace and the Superior Rolling Mill, at the suit of the Metropolitan Trust Company, of New York City.

Kirkpatrick & Co. are running their Leechburg Rolling Mill double turn.

The strike at Oliver & Roberts' wire mill, on the Southside, has taken a new turn. All the creditors of the company having signed for the extension, Major Bent, of Steelton, and John S. Slagle, of Pittsburgh, last week assumed charge as trustees. Efforts will be made to start the mill this week. It is thought the difficulty will be compromised under the new *régime*.

The Pennsylvania Lead Works, situated on River avenue, Allegheny, caught fire on the morning of March 9. The fire broke out in the cupola, and had been burning some time before discovered. When the department arrived the fire was burning fiercely. The loss is about $10,000, on which there is an insurance of $125,000.

The annual meeting of the stockholders of the Union Switch and Signal Company was held at their offices on March 10, and was largely attended. The report of the year's business ending December 31, 1884, was read and accepted. Notwithstanding the depression in trade generally, and especially among railroads, upon which the company depend for business, the sales for the year were considerably in excess of those of any preceding year in the history of the concern. The general results of the business were much more favorable than of the preceding year.

The Scottdale (Westmoreland County) mill of W. H. Everson & Co., of Pittsburgh, is again idle.

The Gill Car Works property, in the Ninth Ward, Allegheny, was sold last week by the sheriff to John W. Chalfant and Campbell B. Herron, who hold a mortgage for $17,868.27 against J. L. Gill, Jr.

OHIO.

Baird Furnace, of the Baird Iron Company, at Gore, in the Hocking Valley, is repairing, and will blow in the first week of April.

W. H. McCurdy & Co., one of the largest iron firms of Cleveland, have asked their creditors for an extension. They were embarrassed by the recent failure of the Cleveland Bridge and Car Company. No statement has been issued, but the general belief is that the creditors will arrange to let the business be continued.

The W. A. Wood Mower and Reaper Works, of Youngstown, are in operation to their full capacity. The new Locke binder, which this company have the right of manufacturing, will be placed on the market this spring.

Suit has been entered in the Youngstown courts to foreclose a mortgage on the Malleable Iron Works and sell the same. A number of firms and individuals holding liens on the property are made co-defendants.

A project for a rolling mill at Wellston, Jackson County, is dependent upon the success of the projectors in selling a large amount of real estate which they have laid off in building lots, the proceeds from which will furnish the capital. A large number of lots have already been sold.

The Winning Keg Factory, recently purchased by the Warren Stove Company and located on the Jefferson Iron Works property, were totally destroyed by fire on the morning of March 10. The insurance amounts to about half the loss. This may interfere somewhat with the operation of the Jefferson Iron Works.

The Bippo Valley Glass Company, of Massellon, made an assignment last week, with assets sufficient to pay 10 cents on the dollar.

The firm of Atkins, Clark & Co., operating the Forest City Rolling Mill, Cleveland, has been dissolved; Mr. Clark buying Mr. Atkins's interest. We are not informed as to the name under which the business will hereafter be carried on.

Brown, Bonnell & Co., of Youngstown, operated three of their four puddling mills last week, two running single turn and one double, and will probably continue to do so this week. They are now preparing to blow in Falcon Furnace, Phœnix Furnace being already in.

Books of subscription to the capital stock of the Centre Mining and Mfg Co. will be opened in Ironton on March 28. The incorporators are the Messrs. Kelly, of the Kelly Nail and Iron Company, of that place. We are not informed as to what the new organization proposes to do.

ILLINOIS.

Love Brothers, of Aurora, are making some improvements in their foundry. They propose placing on the market next season a full line of stoves of new patterns for houses and factories. Among their recent departures is a new and very economical method of manufacturing sash weights.

The Morris Drive-Well Point Company, of Chicago, organized January 1, are now ready for business, and, as their name implies, make a specialty of improved drive-well points.

The Thompson-Houston Electric Light and Power Company have been organized at Quincy; capital $100,000; incorporators, William M. Berry, Samuel A. Blasland and Gerald M. Hill.

The machinery for the Chicago Safe and Lock Company is now in position, and the works will be in full running order early this week. This company have already secured orders for over 70 vault doors and safes.

The Chicago Screw Driver Works recently made a shipment of extensive proportions to London, England, and another to Sydney, New South Wales.

The Bliss Ore Separator Company, of Chicago, have been incorporated, with $250,000 capital.

It is authoritatively stated that the South Chicago rolling mill of the North Chicago Rolling Mill Company will start up the first week in April, an agreement as to wages having been reached. The wages are to be adjusted according to a sliding scale dependent upon the market, and the furnaces are to be worked by two shifts of 12 hours each, instead of three shifts of 8 hours each, as heretofore. About 1800 men will begin work. Preparations are to begin at once for the start-up.—*Industrial World.*

The Northwestern Horse Nail Company, of Chicago, intend April 1 to erect an office and warerooms, 22 x 60 feet and two stories high, just south of their present quarters. The old structure will be remodeled and enlarged for manufacturing purposes.

The Western Nail Company, of Belleville, are now operating over 150 nail machines, and are running their plate mill day and night. Their shipments for the last week in February amounted to more than 9000 kegs. Their product during the year 1884, it is said, was the largest of any nail mill in the United States.

MISSOURI.

The sale of the machines, tools, &c., of the Merchants' Barbed Wire and Mfg. Co. by the receiver of the Harrison Wire Company is advertised. This has been expected, as it was generally supposed that the factory was an appendage of the Harrison Wire Company. The machines are of the Ross pattern for four-pointed barbs.

Another water tower is to be erected at Grand and Blair avenues, St. Louis. It will be 195 feet high, with base 25 feet square. Contracts for the work have been made.

The St. Louis Smelting and Refining Company are now making copper at their works in Cheltenham, Mo., by the electrolytic process.

The Lone Elm Lead Works, formerly Moffett & Sargent, smelters of lead ore and manufacturers of lead oxide paint from ore, have passed into the control of G. T. Lewis, the well-known white-lead manufacturer of Philadelphia.

The Missouri Furnace Company, of St. Louis, blew in one of their two blast furnaces last month.

The Missouri Car and Foundry Company, of St. Louis, have been operating the Wabash Railway Foundry, at Moberly, under a lease since January 5, and have also recently leased the car shops of the same road at the same point. They are not very busy at their St. Louis shops.

MICHIGAN.

The Eureka Iron and Steel Works will blow in one of their charcoal furnaces at Wyandotte shortly.

John Otis & Co. will blow in their Otis Furnace at Mancelona, Antrim County, some time in May.

CALIFORNIA.

The Pacific Iron and Nail Company have recently added a line of French wire-nail machines to their factory at Oakland.

GEORGIA.

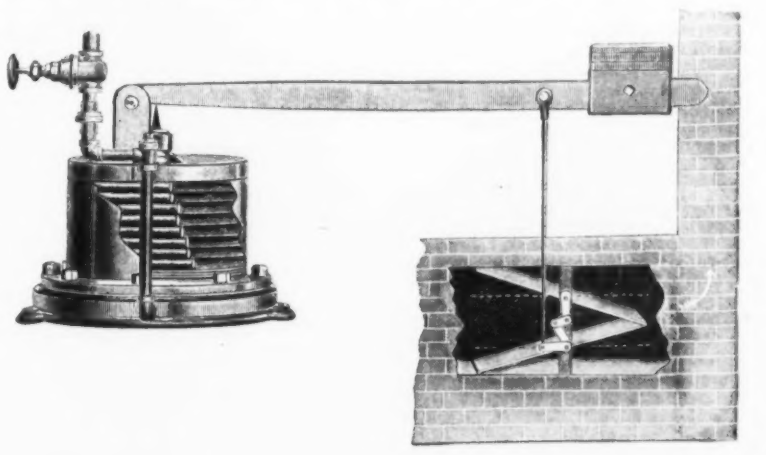
The Southern Agricultural Works, of Atlanta, have made an assignment. The liabilities are $210,000, nominal assets $290,000. The failure was caused by low prices and competition.

KENTUCKY.

The Norton Iron Works will blow in on May 1.

Steam and Fire Regulator.

Messrs. Bowker & Tripp, New Bedford, Mass., are introducing what they call the "Matchless Steam and Fire Regulator," the general features of which can be gained from the examination of the accompanying engraving. The cut shows the regulator and damper in position. It will be seen that a variation in the pressure of steam actuates a lever, which in turn, by means of suitable connections, opens or closes the damper, as the case may be. The manufacturers claim that this device, for regularity, durability and economy, is better than anything else that has ever been introduced. The fact that it works without any attendance whatever and prevents any extreme or frequent fluctuations of damper is the special advantage to which attention is called. The particular benefits following the use of this device are: More uniform pressure of steam, by which better engine results are obtained; saving wear and tear of boiler, by preventing contraction and expansion of tubes, and saving grate-bars from overheating, thus adding to their durability and causing a corresponding lessening of liabilities to explosion.



Steam and Fire Regulator, Manufactured by Messrs. Bowker & Tripp, New Bedford, Mass.

Portable Sugar-Makers' Arch.

The maple-sugar season is rapidly drawing near, and those persons engaged in its manufacture are making active preparations for beginning the work. The various appliances are being put in good order for use, and some of the manufacturers are casting about for any improvements that have been made by which the process of sugar-making is facilitated. Among the latest devices for this and other purposes is that known as the "Champion" portable arch, invented and manufactured by Mr. C. C. Alfred, of Fairfax, Vt. The device is new and possesses novel features of construction. An idea of the article is afforded by the engraving presented herewith. It is made of galvanized iron, having legs of heavy band iron, which extend downward from its sides and across the base, thus adding to the stability of the apparatus. The body is of oblong form, having upward flaring sides, a construction which affords an even distribution of the heat over the bottom of the pan, which rests upon or is partially seated within the body. The base is fitted with a drawer, in which is arranged a loose grate resting on brackets. Beneath the grate is an ash-pit, the door of which is provided with a slide damper to regulate the draft. In the engraving the drawer is shown partially pulled out and in a position for lighting the fire. On the front of the drawer will be noticed a fixed handle for sliding it in and out. This article is especially adapted for sugar-makers' use in that stage of the process known as "sugaring off." The pan is 28 x 34 inches in size and 10 inches deep. The manufacturer claims that by the use of this device fuel and labor are saved, as when the sugar is done it is simply necessary to pull the fire drawer out of the arch, which is much more convenient than removing the pan from the top. The shape of the arch is such that there is no danger of burning the clothes of the attendant, and its portability allows it to be set up in any place desired. The "Champion" is made in any size required, although the manufacturer states that most of those used in that section of country are of the size mentioned above. Those who have used the device speak very highly of its advantages as compared with the old cook-stove method.

"Champion" Portable Arch.

TRADE PUBLICATIONS.

"Ealy's Blue Book."

"Ealy's Blue Book," published by the John W. Ealy Company, 51 Chambers street, New York, and 79 Dearborn street, Chicago, contains a classified list of over 180,000 names of manufacturers and dealers in hardware, iron, machinery, agricultural implements, railway, machinists', engine and boiler makers' supplies, wagon and carriage makers', brass goods, plumbers' and dealers in plumbers', steam and gas fitters' supplies, stoves, tin, cutlery, guns and other workers in iron and metals in the United States and Canada. The rating and commercial standing of the houses named are also indicated in the book, and attention is called to the system of banking collections through the agency of the company. The fact that the last issue of this book contains 70 pages more matter than the issue of July, 1884, and about 20,000 new names, indicates the care that is given to its compilation and the success which it is meeting with the trade. It will be found a convenient and serviceable book of reference for the purpose for which it is intended.

The Sturtevant Mill.

The Sturtevant mill for grinding phosphate rock, emery and for crushing ores is described in a circular issued by Messrs. Fraser & Chalmers, of Chicago, Ill. The mill, which has been gaining ground rapidly of late, particularly for grinding phosphates, has been used also for crushing copper matte at the Oxford Works. It belongs to that type of machines whose grinding surfaces are formed by a bed of the material to be crushed. We understand that during his first experiments Mr. Sturtevant, the inventor, simply used a tin can revolving at great speed on a horizontal axis. With its good record on phosphate rock, one of the worst materials to grind, the probability that it will do effective work in other directions seems promising.

Manual for Architectural Ironwork.

The Union Foundry, which was established at Chicago in 1852 by Mr. N. S. Bouton, the present president, was moved in 1882 to a new site south of Chicago, the style of the firm name being changed to Union Foundry and Pullman Car Wheel Works. Besides making wheels, frogs, switches, crossings, car castings, elevator, gas and water-works machinery, the works devote special attention to architectural ironwork. The "Illustrated Manual," recently issued, is edited by Mr. C. W. Trowbridge, a well-known engineer. It contains drawings and sketches of a large number of neatly-designed cast columns, caps, hitching posts, lamp-posts, cast-iron lintels, wrought anchors of different forms, riveted girders, Carnegie Bros.' beams and channels, fire-escapes and sidewalk lights. What may be termed the second part of the book gives elaborate tables showing the safe loads and deflections of the eye-beams rolled by the Union Iron Mills, the weights of angle irons, the safe loads of riveted girders and coupled and trebled I-beam girders, the weights of corrugated and galvanized iron, and general formulæ in the flexure of beams of any cross-section. Among other things we note also tables, with explanations, of tables of properties, of cast-iron lintels, of safe loads for round cast-iron columns, and of safe strains per square inch of section of riveted columns.

It is stated in the *Journal* of the Iron and Steel Institute that an accident at a foundry in Melbourne, by which a red-hot iron casting was dropped into water, and was afterward found to have become remarkably soft, originated a process for annealing chilled and other iron castings which has just been patented in the United Kingdom. It consists in plunging the metal when it is reduced to a very dull-red heat, and just as the redness is about to disappear, into a mixture of treacle and water having a specific gravity of 1.005. The inventors do not confine themselves to this solution only, but it is found to give better results than any other that they have tried. The process is said to soften castings in such a degree that they can be punched, bored and tapped as readily as wrought metal.

Coal Market.

The Anthracite Coal trade is very quiet—more so than a week ago, and prices are hardly as well sustained. There will be no improvement before the latter part of the month, when the purport of the spring opening prices, commonly announced about April 1, becomes generally understood. As it is, the companies are doing tolerably well for the season—as well as, if not better than, the average in other trades. Quotations are about as follows: Broken and Egg, comprising steam sizes, $3.50, alongside; Pea, $2.50; Chestnut, $3.50 @ $3.60. If consumers were sure there would be no drop business would be more active, as much Coal will be wanted very soon, on account of low stocks.

The Bituminous market is very much broken up under the conflict of rival interests. The pool hold for $3.25, while outsiders often take 15¢ @ 20¢ less, the effect being to check business.

The miners' strike at Pittsburgh has no effect in this market. Freights are lower both to the East and South. Walter Freeman, lately of the Pennsylvania Railroad Company, now represents the joint interests of the Pennsylvania and Baltimore and Ohio Coal interests.

The total amount of Anthracite mined thus far in the year 1885 is 4,060,736 tons, compared with 4,171,639 tons for the same period last year, a decrease of 110,903 tons. The total amount of Bituminous sent to the Eastern markets thus far in the year 1885 is 820,866 tons, compared with 751,393 tons for the corresponding period last year, an increase of 69,473 tons.

Nail-Making in California.—The estimated consumption of San Francisco, including supplies sent inland, has varied from 85,000 kegs in 1865 to 259,000 kegs in 1883. These figures show a monthly consumption varying from 7500 kegs to 21,600 kegs. Dealers have been accustomed to carrying a stock of 6000 to 60,000 kegs. Now that supplies are obtainable in California, the hardware men allow the manufacturers to carry the burden of stock. It will probably be a long time before California cuts entirely loose from Eastern supplies of this nature, though it is stated that the local factory has sufficient capacity to meet all the demands of the coast. This factory is located at Oakland, and was erected in the closing months of 1882. It is supplied with the latest improved machinery. The building is two stories high, and the machines are placed in the second story, the nails dropping through apertures in the floor to reservoirs on the first floor. A rolling mill is attached to the works, so that the iron is prepared and all the operations completed at the same point. The factory has a fine water frontage, and the first cargo of 500 tons of iron came alongside the company's wharf in January, 1883. There is also rail connection direct from the factory with all parts of the country. The factory has encountered the usual obstacle incident to the introduction of manufacturing enterprises in California. There have been two or three strikes among the workmen concerning wages, but everything is now running smoothly. The factory made about 100,000 kegs in 1883, and 129,332 kegs in 1884. At the close of 1884 the factory held a stock of 21,561 kegs. The managers expect to make 200,000 kegs in 1885, and claim that the factory has a capacity for 300,000 kegs. Despite this outlook from the local factory standpoint, it is probable that at least 100,000 kegs will be received at San Francisco from the Eas this year.

The failure of Congress to pass a national bankrupt law has induced the merchants and manufacturers of this city to seek such amendments to the assignment laws by the Legislature as will prevent undue preference, so that all creditors will share alike.

We often hear of the constant drip of water wearing away the solid stone, but there are other agencies that work as slowly and effectually. Mr. Perrey, the director of the steel works of Treblaine (Loire, France), gives the following detail of the wear on a hammer handle constantly used: A workman in cutting files about 15 inches long, called "bastard," uses a hammer weighing $7\frac{7}{10}$ pounds, and wears out a handle of hollywood in about one year, after having struck about 11,250,000 blows with the hammer. In cutting triangular files about 5 inches long, and in metal somewhat softer than the above, the hammer used weighs $2\frac{9}{10}$ pounds, and the holly handle lasts about two years, and has been used in striking 25,440,000 blows. The first named hammer has a handle the section of which is $1\frac{18}{100}$ inches x 1 inch, and the second handle is 1 inch x ¼ inch; both are oval in section.

The Ajax Forge Company, of Chicago, Ill., are the assignees of the patent right in a machine for straightening, shearing, punching and bending arch bars. This machine is designed more particularly for making the arch bars for railway car trucks, and the object of the patented improvement is to perform all the necessary operations in their natural order on one machine. The driving shaft is located midway between the extremities of the bed-plate, and is coupled to suitable crank-wheels, and to an eccentric and pitman which extend in opposite directions. Cross-heads operated by the pitman, are provided with the punching and bending dies. These dies have removable counterparts which can be changed if it is desired to use the machine for the upsetting of coupling-pins or bolt-heads. Proper gauge-plates for adjusting the length of the bolts are secured to the machine.

CONTENTS.

The Certificates of Quality of the Swedish Iron Board.

Under date of December 1, 1884, the Swedish Government issued a circular, of which the following is a translation:

The "Jernkontoret," or Association of Ironmasters, which is in existence since 1748, is devoted to the progress and development of the metallurgical industry of Sweden. To that end engineers are paid and placed at the disposal of ironmasters, in order to assist them in introducing and applying the most profitable methods of working. The association furthermore gives its attention to all matters which, from a scientific and technical point of view, may tend to the development of the industries protected and fostered by it.

Thus, appreciating the importance of possessing means to ascertain, by experiments and careful tests, the physical properties of different metals, the association has carried on for some past, at a considerable cost, an experimental establishment where various tests are made in order to examine and prove the intrinsic properties of metals, more especially those of iron and steel.

The Swedish Government has shown its interest in this enterprise by granting, free of cost, a suitable piece of land, situated in the immediate vicinity of Stockholm, at the railway station of Liljeholmen. This establishment, which has been in working order since 1876, is organized on the same principles as similar institutions in other countries. The tests are made by means of a Werder machine, which has hitherto proved itself admirably adapted for the purpose and can develop a power of 100,000 kg. At the head of the office the Association of Ironmasters has placed a director, by whom the materials sent for examination are tested, and the results of his investigations are recorded in certificates issued in the name of the establishment and marked with a special seal. Ever since its erection the establishment of Liljeholmen has enjoyed the confidence of both national and local authorities, as well as of a considerable number of private individuals. The conscientious manner in which the tests are made has been indorsed by the navy, the artillery, the railway service and the municipal authorities of the city of Stockholm for some years. The Navy Department, for instance, requires that all the cannon and projectiles purchased by it be previously tested at the establishment. The introduction in Sweden of the "Martin" steel as the material for cannon is principally due to the experiments made at Liljeholmen, and the chief of the artillery has expressed the opinion that the institution has shown itself to be indispensable for the development of the manufacture of steel artillery and rifle barrels. In fact, all the above-named authorities concur in the opinion that the tests made by the establishment are convincing and decisive.

Though justly proud of the reputation the establishment thus enjoys in Sweden, the Association of Ironmasters contends that the establishment does not fulfill its mission as completely as it ought, because its existence and the nature of its labors are but incompletely known elsewhere. Thus it happens that foreign purchasers do not attach to the certificates issued by the establishment the full importance to which they are entitled. So far as regard iron ships and their appurtenances this is probably due to the fact that certain large institutions, such as Lloyds and the Bureau Veritas, do not in their circulars mention the establishment of Liljeholmen among those whose certificates they recognize. Considering, however, that the Association of Ironmasters is a corporation sanctioned and approved by the Swedish Government, and that the national reputation of the Liljeholmen establishment gives unlimited authority to its certificates, it would appear both equitable and desirable that the same authority be given to these certificates in foreign countries.

You are therefore directed to bring these remarks to the notice of the Government to which you are accredited, with a request to be good enough to communicate them to the authorities and institutions who may desire information respecting the physical properties of Swedish iron and steel, more especially to the institutions for the classification of vessels.

High Explosives in Warfare.

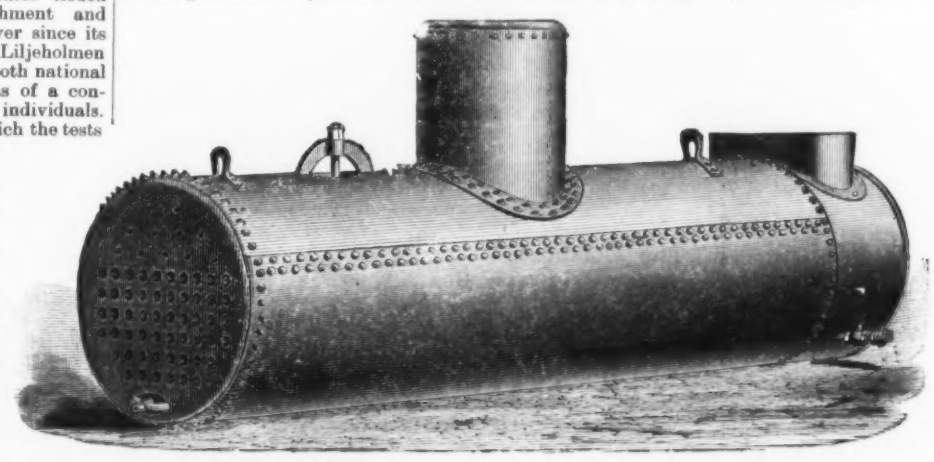
During the last session of Congress the theory was advanced that the effect of a moderate weight of dynamite exploded in contact with the plates of a modern armor-clad ship would be disastrous to the vessel. The Naval Bureau of Ordnance has tested this by exploding charges of guncotton and dynamite varying in weight from 5 to 100 pounds, against a vertical target composed of nine layers of 1-inch wrought-iron plates, strongly backed with 20 inches of wood, and braced so as to represent as well as possible the stiffness of the sides of a ship. Though much more work was done than it is likely would ever be performed against the armored side of a ship, the target was not materially injured.

In the course of these experiments it was apparently shown that the point at which a charge of a high explosive is ignited has an important effect upon the work done, since the effects of these charges were readily increased or diminished very materially, according as they were ignited on the side away from or adjacent to the plate, and this, too, notwithstanding the distance between the points of ignition in the two cases was only a foot. It is claimed that this result shows that the charge of a high explosive cannot furnish any tamping effect, but that to produce the greatest effect the ignition must be at some interior point of the explosive, well toward the rear. It also appears that the effects do not increase proportionally to the increase of the charge when the ignition surface remains constant. The gradual ignition of the charge, even in the case of so violent an explosive as guncotton, was strikingly illustrated by the fact that, when 26 pounds of wet compressed disks of that material were piled upon an iron plate and exploded from the top (without tamping or cover), accurate impressions of the lower disks in the pile were stamped upon the iron underneath them. In this case there did not seem to be the least doubt concerning the complete explosion of the charge.

Experiments were also successfully made in firing shells charged with guncotton from ordinary rifled cannon, 12 rounds being fired from the 12-pound howitzer and 13 rounds from the 80-pound breech-loading rifle, and the ordinary service charges of gunpowder being used in the gun. Three unfused shells charged with gunpowder were fired from the 80-pounder against the target used in the dynamite experiments. The shells exploded with great violence on impact, but the damage to the target was very slight, as the explosion took place before any practical penetration was effected. In view of recent successful experiments with a fuse designed to explode wet guncotton, the bureau has under consideration a plan of a piece which is intended to project an aerial torpedo charged with 100 pounds of wet guncotton, to be exploded over or upon an enemy's deck.

A New Method of Constructing Horizontal Tubular Boilers.

At the annual meeting of the American Society of Mechanical Engineers, held in this city in the early part of last month, Mr. F. A. Scheffler, of Erie, Pa., in a paper on the above subject remarked that when steel can be obtained for use in boilers, having a guaranteed strength of 60,000 pounds per whether the weld would be a substantial one square inch, an elastic limit of 30,000 pounds, an elongation of 20 per cent. in an 8 inch specimen, and a reduction of area from 45 to 50 per cent., and which will also bend down close when cold, without fracture, it is very apparent that the superiority of steel over iron cannot be questioned. Another favorable point is that this quality of steel is homogeneous and it will not blister.



NEW METHOD OF CONSTRUCTING HORIZONTAL TUBULAR BOILERS.

The fact that these large plates of steel can be obtained caused this question to arise in the mind of the president of the works where Mr. Scheffler is employed: Why not construct boilers of steel in two plates only? The advantages are numerous and of the best kind.

It is well known that attempts have been made, and these attempts have sometimes been successful, to make a boiler of the style in question, with a single plate on the bottom, by hammering and swaging into shape. According to Mr. Scheffler, no reliability can be placed on boilers made by this method, as the iron (when iron is used) loses its toughness and good qualities by being subjected to such a large amount of hammering as must be done to form such a construction. Mr. D. K. Clark refers to some tests which he made on welded-iron plates, and, although some of the tests were very satisfactory, the danger lest it be not known positively or not causes a reluctance in recommending boilers with welded plates. This method, according to Mr. Scheffler, is also very costly, and, with the uncertainty and cost combined taken into consideration, it has been abandoned.

By making a boiler as shown in the annexed cut, of two plates only (except, of course, the flue sheets), Mr. Scheffler claims the following advantages:

1. By carrying the longitudinal seams above the water-line (say 2 inches above the top of the flues), and closing up the brick setting at that hight, there will be no seam exposed to the fire other than the lower half of the back head. This is a positive advantage over boilers as commonly constructed when there are from four to eight seams exposed to the fire.

2. By thus eliminating the exposure of the seams, a greater reduction is apparent of the chances for a leakage around the rivets.

3. The advantage of equal expansion and contraction is so great as to also be of great benefit, and the usual excessive strains are largely reduced.

4. For cleaning the boiler no question can be raised as to the benefit of a single plate on the bottom. There are no rivets for lodgment of scale, sediment, &c., and there are no seams to interfere with a thorough scraping of the shell.

5. There being no seams vertically, the boiler must be stronger, as there are no holes punched for rivets.

"This latter fact," remarked the author, "is the one, I apprehend, that will give rise to the most serious discussion of this paper. I am inclined to think some member will question whether one large plate extending the whole length of the boiler will be as strong as the same plate cut into two or three pieces and then single-riveted together. I believe that the former is the stronger of the two, and if the boiler is properly supported (as all boilers should be) there will not be any trouble with the boiler springing or the plates warping."

A set of hollow rolls 16 feet 4 inches long in the clear, and each roll 14 inches diameter and 2⅝ inches thick, was designed some time last spring by the former superintendent. When Mr. Scheffler took charge it was proposed pushing the matter forward as soon as possible, and patterns were made immediately and then put in the hands of the molders. The castings were soon under way, and by the 1st of September the rolls were ready for the first experiment. They were geared to run by belting from the main line, running 120 revolutions per minute, and the speed reduced to 3 revolutions per minute on the rolls. Eight-inch single belting was used. The first sheet experimented with was for a 36-inch x 10-foot boiler, and the plate was 62 inches wide and 10 feet long, by $\frac{7}{32}$ inch thick, of steel. The rolls worked somewhat hard at first, being new, and they were allowed to run two days to stretch the belting as much as possible. The stretch was then taken up and the plate entered into the rolls. This plate went through in good shape, and so did the top plate—the latter rolling up easier than the bottom plate, because the sheet had been punched for the dome and a hole cut for the manhole. A larger plate was tried next—a plate 12 feet long, $\frac{5}{16}$ inch thick—when it was found that the gearing was insufficient for the work. An alteration was then made, new gears being substituted, by which the power was largely increased, and 10-inch belts were used. The 12-foot plate was then rolled. The amount of power required to roll this immense sheet of steel was entirely beyond expectation. When a 12-foot plate, $\frac{5}{16}$ inch thick, was attempted, it was rolled entirely by "coaxing," as the belts would slip, although the pulleys were quite large in diameter and as wide as convenience would permit. The pressure exerted on each roll at its circumference, or the pitch line of the gears on the rolls (the latter being the same diameter as the gears), is estimated to have been 15,000 pounds, and was supposed to have been sufficient to roll a plate of any size that the rolls would take in.

The idea of belting was at once abandoned and an engine was specially constructed to gear direct. On the 23d of September, 1884, the first 60-inch boiler, 16 feet long, ⅜ inch thick, of steel, was constructed in two plates. This is the first boiler of this description ever made in this country, and, as far as Mr. Scheffler had knowledge, in any other country. It is found that a greater degree of accuracy can be maintained in getting the rivet holes in direct line, and thereby the likelihood is greatly reduced that the boiler-makers will have the chance to use the detestable drift-pin, that greatest of all evils in boiler construction.

Mr. Scheffler, after briefly referring to the use of steel for boilers, concluded by saying that if locomotive boilers constructed of steel should be made with only one course in two plates, from the throat sheet to the smoke-box, there would undoubtedly be a great reduction of the liability to leakage and wear and tear, and probably a longer life of the boiler would be secured, although the fire box is generally the first place to need repairs.

The Canan Dredging-Machine Shovel Patent.—Judge Wallace, in the United States District Court, at Syracuse, has rendered a decision in the case of James Canan against the Pound Mfg. Co., which involves a very interesting point in patent law. In 1878 the plaintiff obtained Canadian letters patent for an improvement in dredging-machine shovels, the term of the patent to expire in 1883. In the same year letters patent of the United States were issued to the plaintiff on the same invention for the term of 17 years. The defendant claims that the plaintiff's American patent is void, because it is granted for the term of 17 years from the date of its issue, and is not limited on its face to expire at the time of the expiration of the Canadian patent for the same invention, as the United States laws require. The decision holds that the plaintiff's patent is valid, but that the term of the grant expired at the expiration of the Canadian patent. The plaintiff is entitled to recover for infringement prior to December, 1883.

The business world may well inquire if there is no protection from the strikes of dissatisfied workmen which cripple transportation companies, and, by nullifying contracts, cause serious losses from delay in the movement of freight. A contemporary remarks upon the strike on the Gould lines: "The policy of cornering the entire trade of the country in order to punish common carriers is a policy that cannot be tolerated. The strikers simply say to the public that all business depending on the freight traffic shall stop until a private quarrel is settled—in other words, the contracts entered into between the common carriers and shippers are to be vacated until such time as the railroad hands may be pleased to permit their performance." The Governor of Missouri, in a proclamation, concedes the right of the men to strike, but to hinder others from accepting the wages they refuse is denied. What is wanted is even justice for all.

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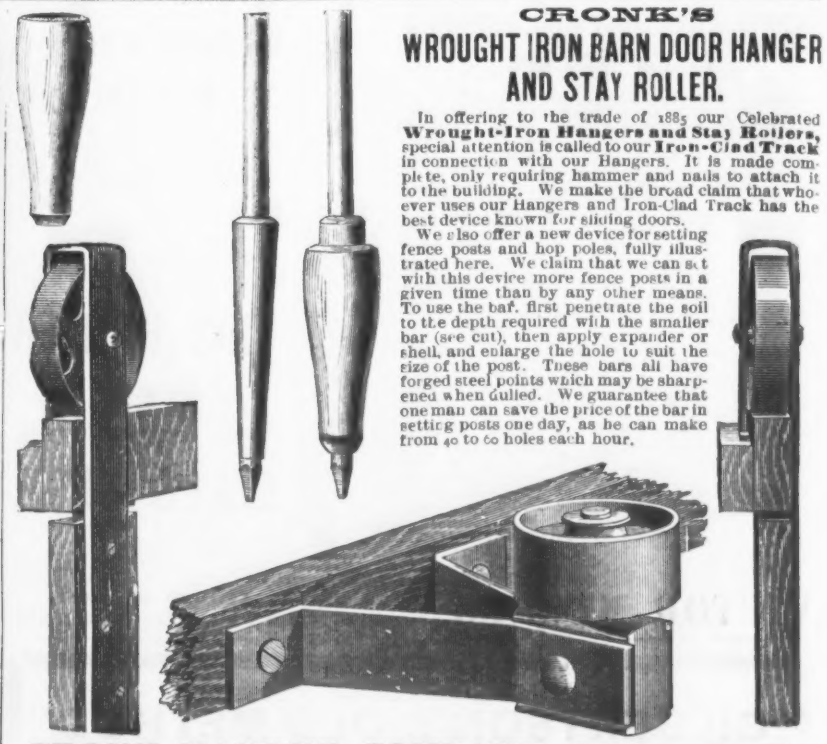

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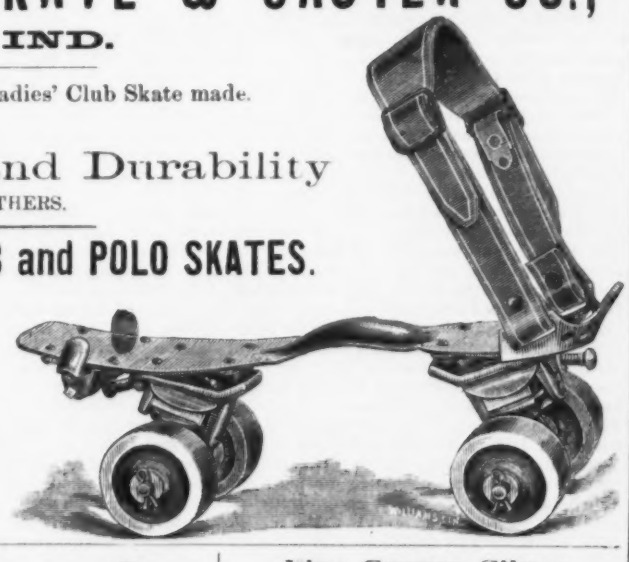
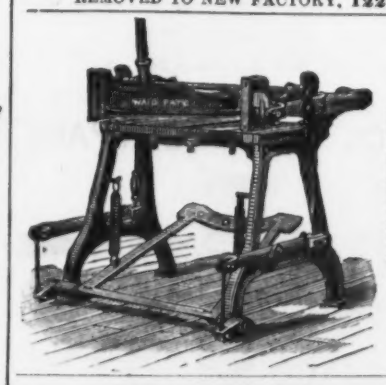


WAIS' PATENT

Squaring and Trimming Shears



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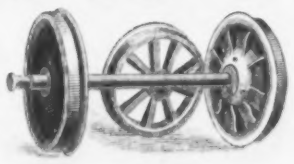

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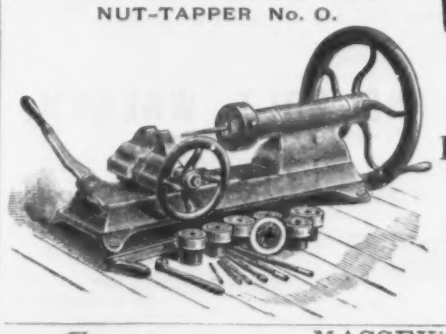

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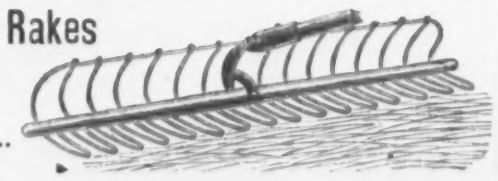

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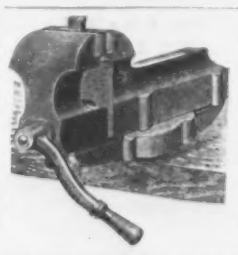

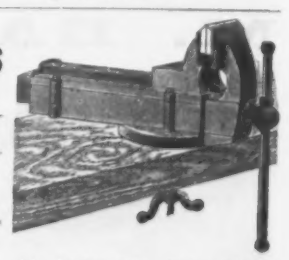

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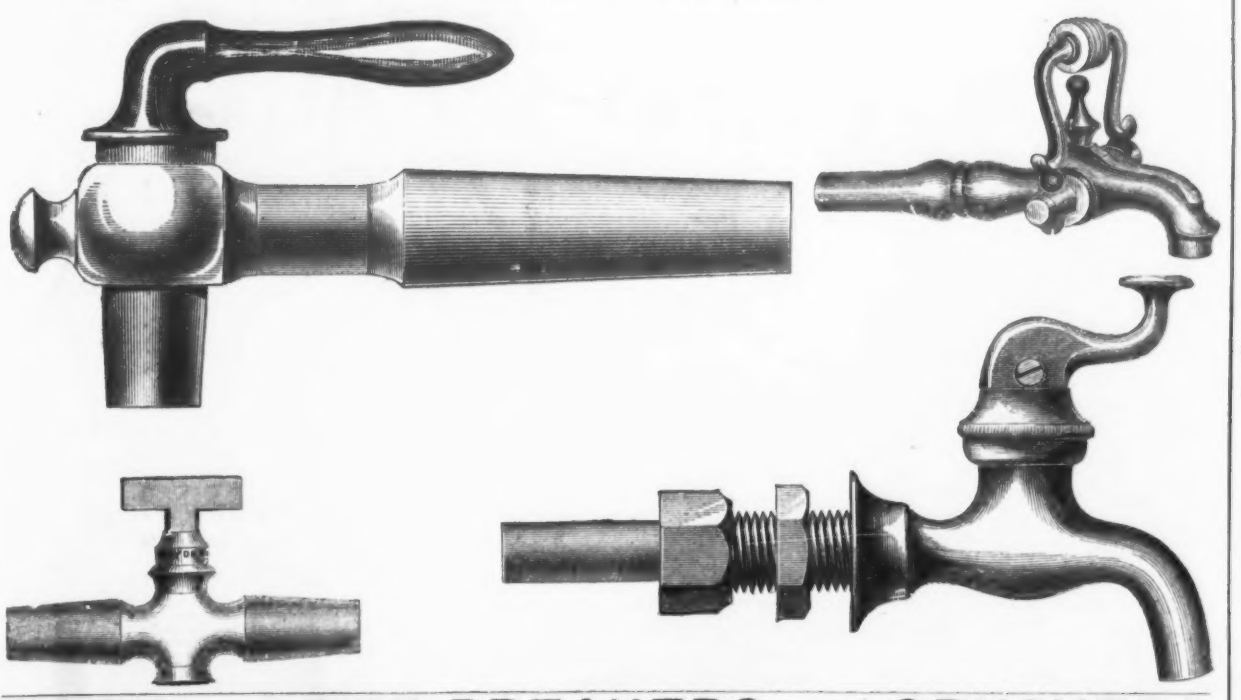

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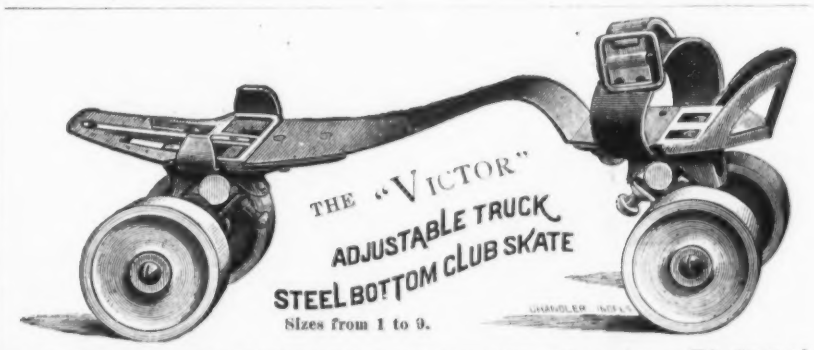

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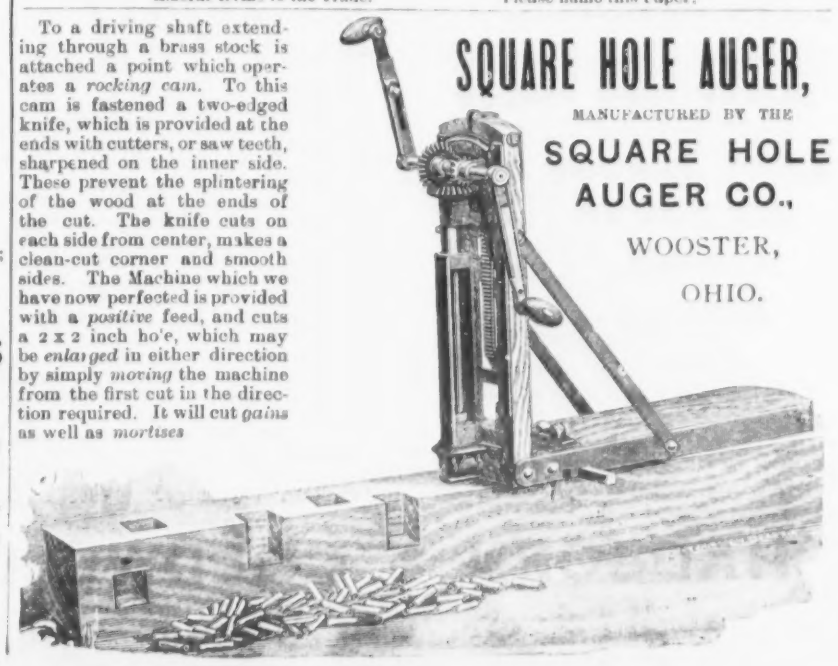

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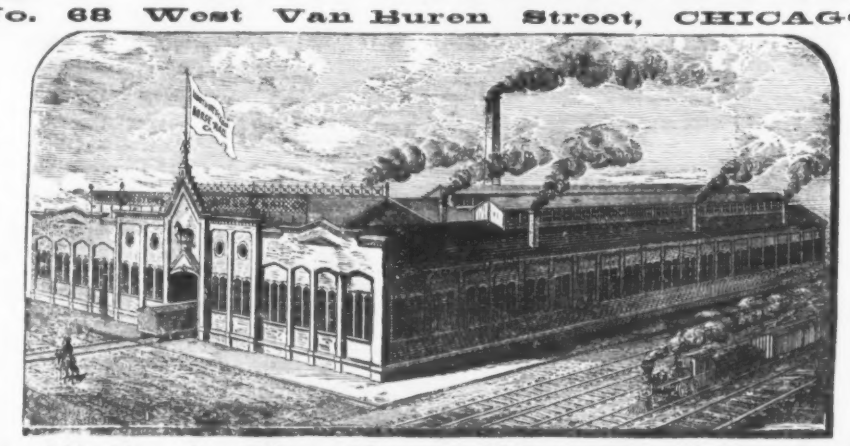

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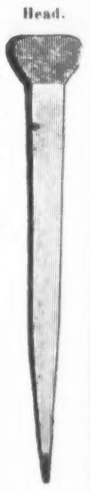

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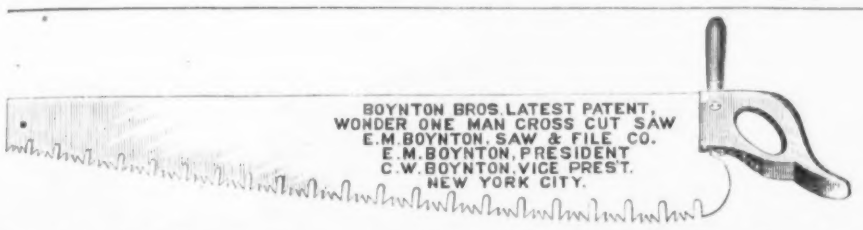

THE CUT ABOVE represents our latest patent ***"Wonder" One-Man Saw.*** which style of teeth we shall use for our Cross-Cut One-Man Pruning and Buck Saw. This tooth has all the direct fast cut of the Lightning, combined with the clearing teeth of the Champion, making it, as its name indicates, the Latest Wonder, and by actual test we decide an advantage of 20 per cent. over our former world-renowned Lightning Saw.

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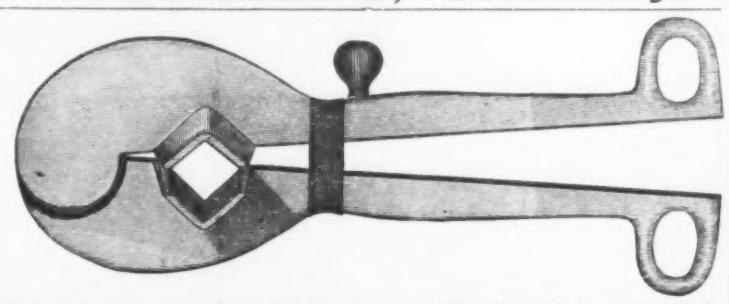

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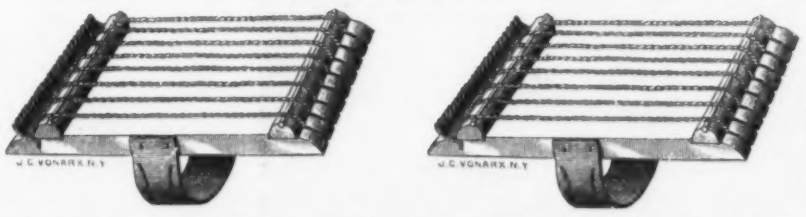

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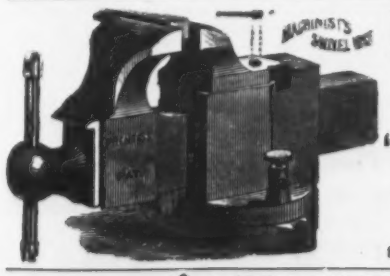

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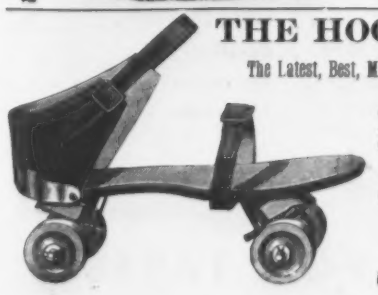

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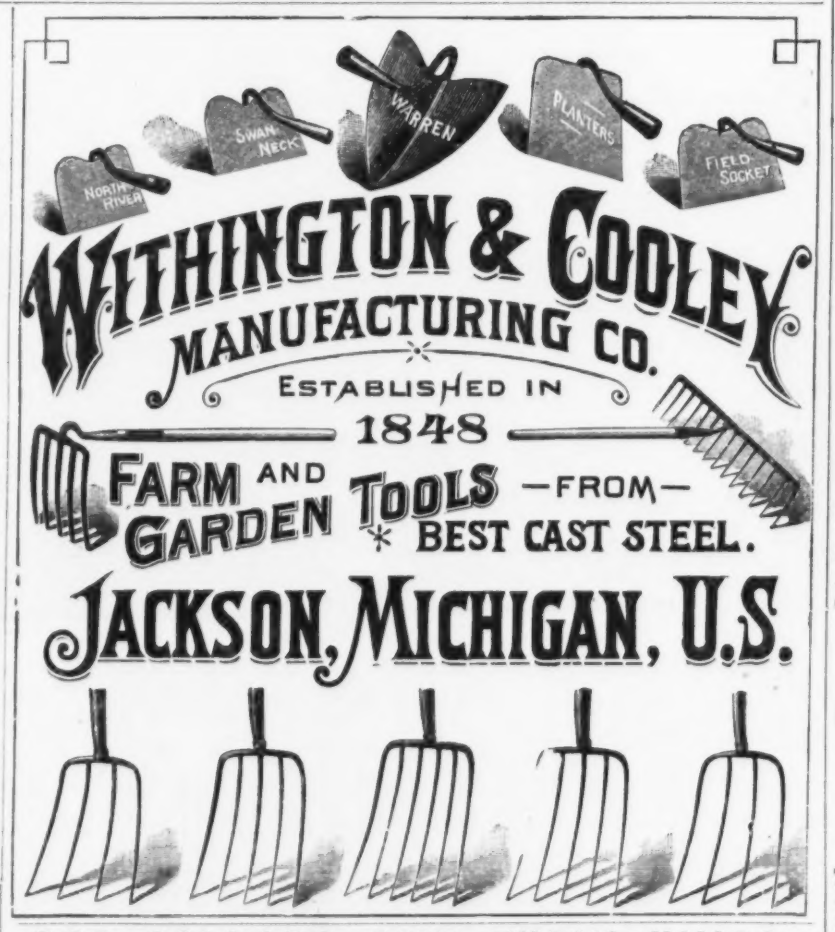

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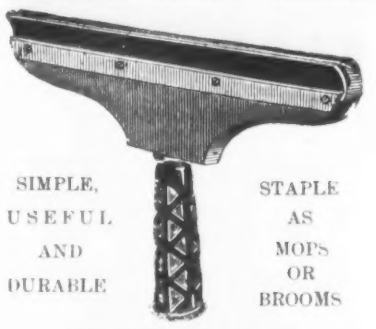

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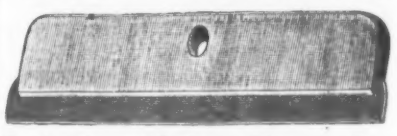

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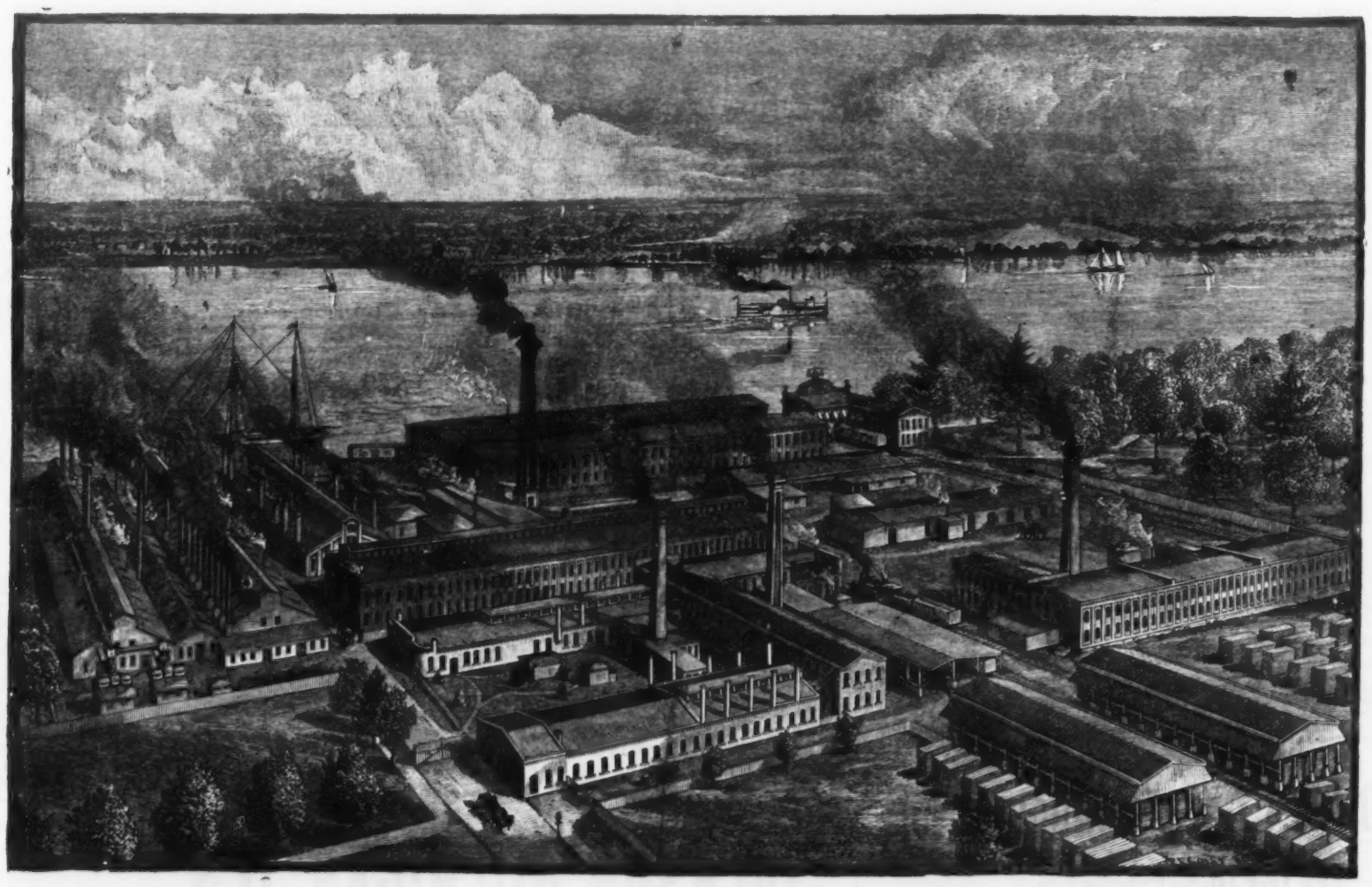

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Centennial, Philadelphia	1876, Bronze.
New South Wales	1877, Bronze.
Paris, France	1878, Gold.
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Sydney, New South Wales	1879, Bronze.
Melbourne, Australia	1880-81, Silver.
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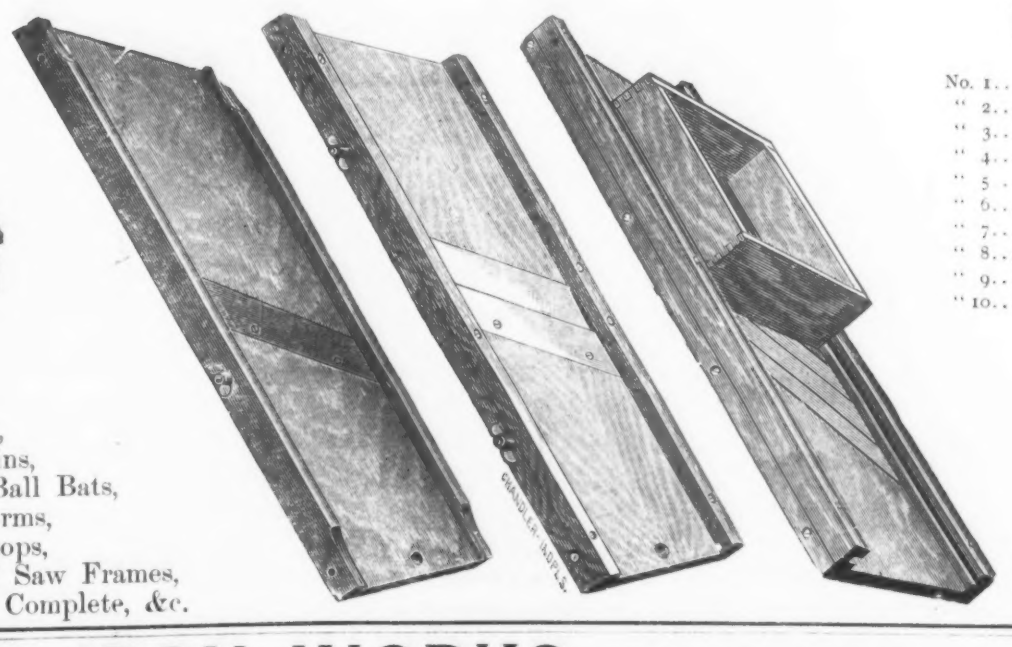

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No. 1	1 knife,	with box,	8 x 26,	per dozen.
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" 3	3 "	"	"	"
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" 5	3 "	"	9 x 30,	"
" 6	2 "	"	12 x 36,	each.
" 7	3 "	"	"	"
" 8	4 "	"	"	"
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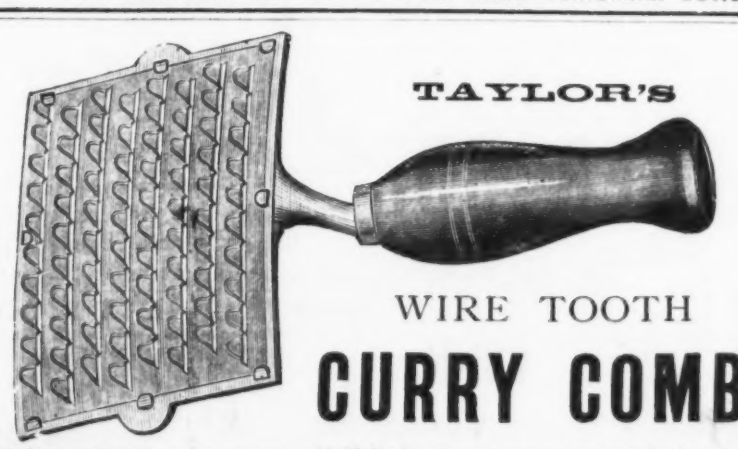

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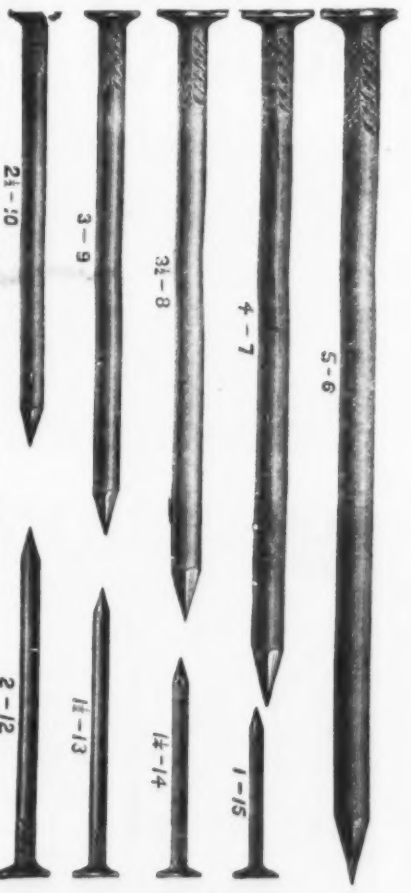

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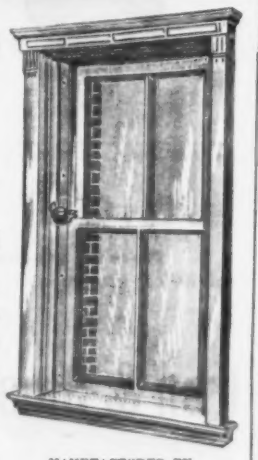

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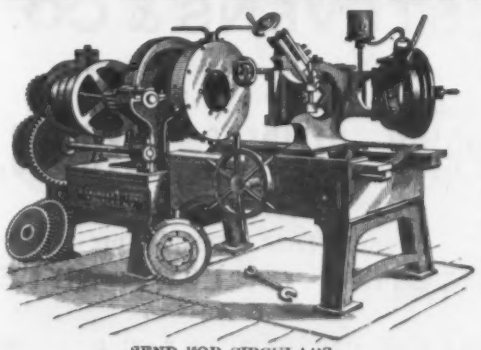

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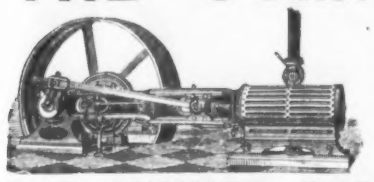

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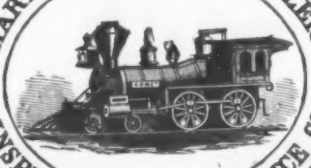

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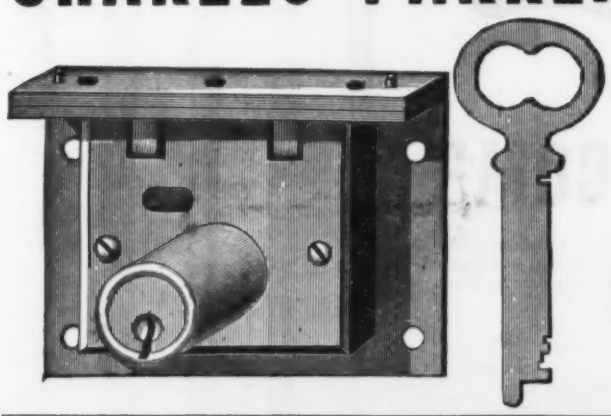

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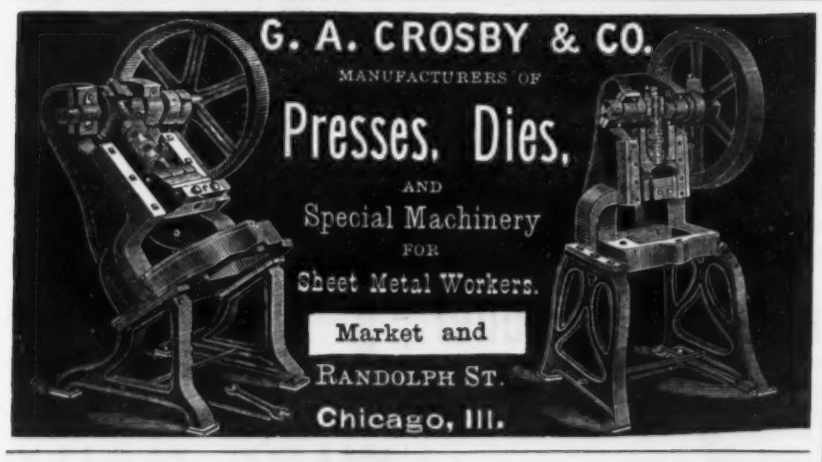

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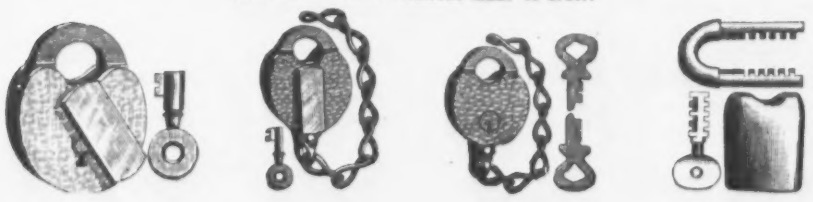

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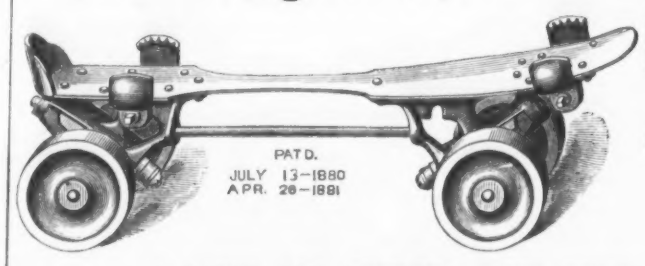

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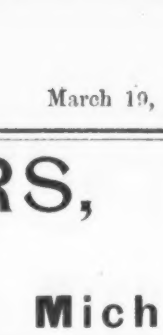

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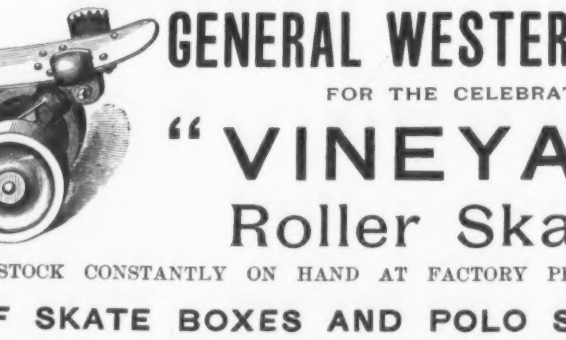

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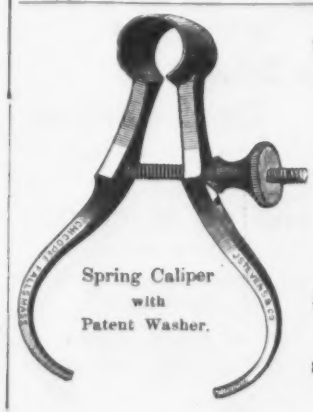

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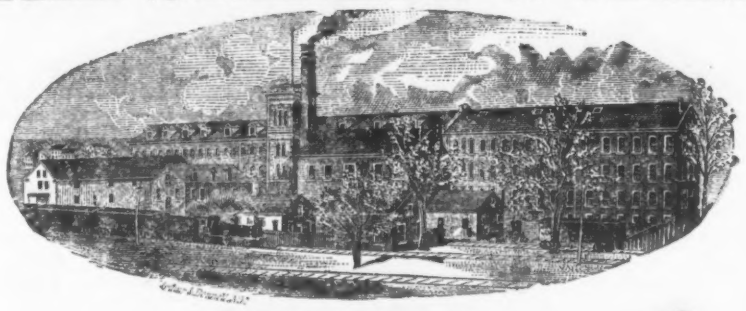

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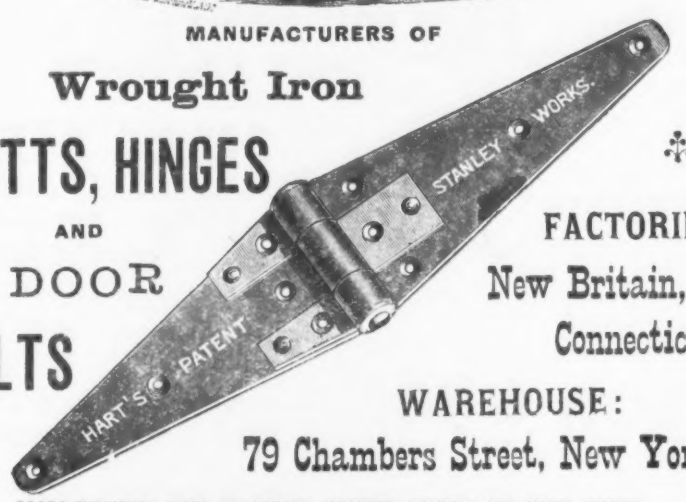

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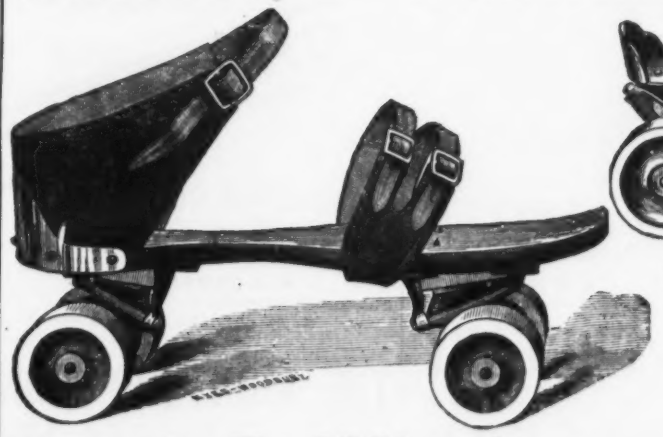

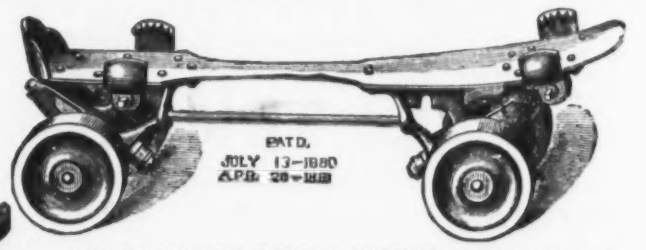

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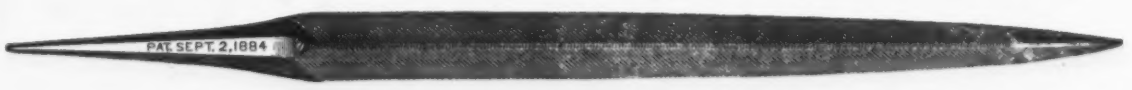

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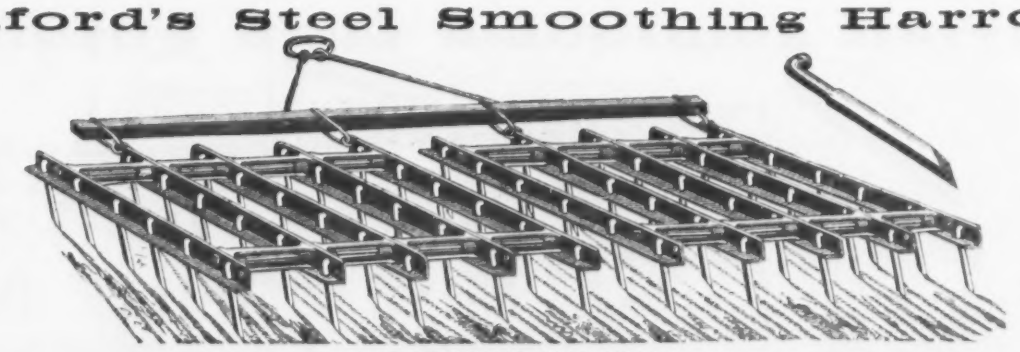

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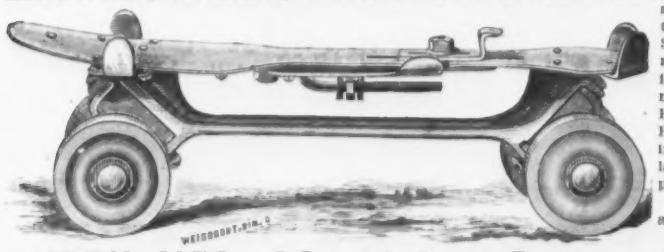

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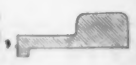

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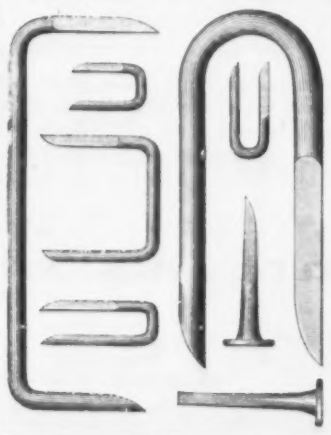

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New Haven Copper Company ....dis. 70 %
Benjamin Pierce Auger Bits ....dis. 40 %
Jennings' Auger Bits, new list Jan. 1, 1884..dis.. 25 %
Cook's Auger Bits and Augers ....dis 55 %
Snell's Ship Augers ....dis 20 %
Watrous' Ship Augers ....dis. 15 %
Bonney's Pat. Hol. Augers, list $48 ₩ doz dis 33⅓@40 %
Stearns Pat. Hol. Augers, list $48 ₩ doz...dis. 20&10 %

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Swiss Pattern Hand Bells ....60 %
Connell's Door Bells ....dis. 20&10 %
Gt. Western & Kentucky Cow, new list ....dis. 70 %

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Philadelphia Carriage Bolts ....new list dis. 75&10 %
Stanley, Wrought Shutter ....dis. 50, 10, 10&5 %

Braces.—Barber's Improved ....dis. 40@40&5 %
Barber's Old Style ....50 %
Backus ....dis. 50&10 %
Spofford ....dis. 50&5 %
American Ball ....dis. 55 %

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Cast Fast Joint, Broad ....dis.60&10 %
Cast Loose Joint, Narrow ....dis. 70&10 %
Cast Loose Joint, Broad ....dis. 70&10 %
Cast Acorn, Loose Pin ....dis. 70&10 %
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Cast Mayer's Loose Joint ....dis. 70&10 %
Wrought Loose Pin ....dis. 60&10&10&2½ %
Wrought Table Hinges and Back Flaps..dis. 55&10 @ 60&7½&10 %
Wrought Loose Joint...dis.60&2½ @ 60&10&10&2½ %
Wrought Narrow Fast ....dis. 60&10 @ 60, 10&7½ %

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Parker ....dis. 75&2 %
Clark ....dis. 80 %
Shepard ....dis. 80 %
Lull & Porter ....dis. 80&10 %
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Best Proof Coil Chain—English.
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₩ doz...$3.50 4.00 4.50 5.00 5.50 6.50 7.50 9.00 10.00
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₩ doz ....$18.00 26.00 32.00 } dis 60 %
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Mattocks.
Long and Short Cutter ....new list, 60 %
Pennsylvania Pattern ....dis 60 %

Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.dis. 20&10 %
Stebbins' Gates ....dis.80 %
Lincoln's Gates ....dis. 70&10 %
Landers, Frary & Clark's Petroleum ....dis 40&5 %
Brass Liquor Cocks new list Jan. 1, 1880....dis. 65 %
Cork Lined Cocks ....dis. 70 %

Meat Cutters.
Dixon's ....dis. 40 %
Woodruff ....dis. 40 %
Stowe ....dis. 40 %
Hale's ....new list, dis. 60, 10&2 cash
American ....dis
Stuffers ....dis. 40 %
Enterprise Stuffers ....dis. 20&10 %

Planes.—Sandusky Tool Co ....dis 20&2 %
Ogonts ....dis. 25&2 %
Ohio and Auburn ....dis. 20&2 %
Bailey (S. R. & L. Co.) ....dis. 20&10 %

Plane Irons.—Ohio Tool Co ....dis. 20&10 %
Butcher's ....$5.00 @ 5.25 to £

Plumbs and Levels.
Stanley's Adjustable ....dis. 70&10 %
Stanley's Non-Adjustable ....dis. 70&10 %

Picks.—New list ....60&5@60&10 %

Razor Strops.
Lamont Combination ....₩ doz. $4.00
Lamont Combination ....1 gross lots $42.00
Imitation Emerson ....₩ doz. $2.00
Lamoille, 1 doz. lots ....$3.50 net
" 1 gro. " ....$38.00 net

Rules.—Stanley Boxwood ....dis. 80@80&5 %
Stanley Ivory ....dis. 55 @55&10%

Steelyards.—Hart's Pattern ....dis. 40 %
Per doz....$14.50 17.75 21.00 26.50 31.00 35.50
Lbs 50 100 150 200 250 300
American Pattern ....dis. 40 %
Per doz....$8.00 10.25 13.75 15.60 16.75 19.50
Lbs 50 100 150 200 250 300
Scale Beams ....60@60&5 %
Custers ....25 %

Squares.
Steel and Iron.dis. 60 %; full cases ....dis. 60&10%
Try Squares, Stanley ....dis 60&10 %
Disston's Try Squares ....dis 45&10 %

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened ....₩ doz $9.00 }
Clipper No. 10, Bronzed Blade, Boxed and Sharpened ....₩ doz $8.50 } 35
Clipper No. 5, Painted Red, Boxed and Sharpened ....₩ doz $8.00 }

Saws.—Disston's Hand, Panel and Rip....dis 20&10 %
Disston's Circular ....dis 45&10 %
Cross-Cut No. 2, Plain Tooth ....dis 45&10 %
Cross-Cut Patent Tooth ....dis 45&10 %
Cross-Cut Champion Tooth ....dis 45&10 %

Shovels and Spades.
Oliver Ames & Sons, new list ....dis 20 %
Griffiths ....dis 50&10&6 %
Rowland ....dis 60&5@60&10 %

Sad Irons.—4 to 10 lb ....₩ lb 2½¢
Mrs. Potts' Patent ....dis 35 %

Stone.
Washita Extra ....₩ lb 16½¢
Washita No. 1 ....₩ lb 14¢
Washita No. 2 ....₩ lb 10¢
Washita Slips ....₩ lb 27¢
Washita Axe ....₩ lb 13¢ net
Hindostan Oil Stone No. 1 ....₩ lb 6¢ }
Hindostan Axe Stone ....₩ lb 8¢ } dis 40 %
Hindostan Slips ....₩ lb 10¢ }

Screws.—Parker List.
Flat Head Iron ....dis 85 %
Flat Head Brass ....dis 85 %
Round Head Brass ....dis 83⅓ %
Round Head Iron ....dis 83⅓ %

Spoons.
Plated ....dis 50&5&5 %
German Silver ....dis 40&10@50 %
Britannia, Boardman's ....dis 60 %
Britannia, Parker's ....dis 60&10 %
Tinned ....dis 10 %

Springs.—Torrey ....dis 50 %
Gem No. 3 small Japanned ....$2.00 } dis 50&10 %
Gem No. 2 medium Japanned ....2.75 }
Coil No. 10 ₩ gross net ....$5.50@6.00
Other Standard Springs ....dis 50&10@60 %
Warner Door Springs, ₩ doz. $2.50 ....dis 40&10 %
Standard Spring Hinges—
Single No. 0, ₩ doz. net ....$1.10@1.25
Single No. 1, ₩ doz. net ....1.25@1.50
Other Standard Spring Hinges ....dis 25&10@40 %

Stocks and Dies ....dis 10 and 5 %

Stove Polish.—Gem ....₩ gross, $4.50, dis 5 %
Dixon ....6.00, dis 10 %
Fire Fly ....$3.00 gross, net

Tacks ....dis 30&10 %
Shoe Nails—4-8, and over, 7¢ } 10 %
Shoe Nails—3½-8, and under, 8¢ }
Double Pointed Tacks ....dis 75&10 %

Traps.
Genuine Oneida—Newhouse ....dis 35 %
Im. Oneida—Newhouse list. First qual...dis 60&10 %

Vises.—Solid Box. Trenton new list..dis 50@50&10 %

Wrenches.—Agricultural ....dis 75 %
Coes' Genuine ....dis 60&3 %
Coes' Mechanics' ....dis 60&10&3 %
Coes' Mechanics,' Mall. Bar ....dis 75&15 %

Wire.
Bright or Annealed, No. 0 to 18 ....dis 70@70&5 %
Bright or Annealed, No. 19 to 26 ....dis 70@70&5 %
Bright or Annealed, No. 27 to 36 ....dis 75@75&5 %
Coppered, 0 to 18 ....dis 65&5 %
Tinned Broom Wire ....dis 65 %
Galvanized Barb Wire ....5½¢
Painted Barb Wire ....4½¢
Galvanized, No. 7 to 18...Market List, dis ....60 %

Wringers.
Peerless No. 2½ $30.00
Peerless No. 2 ....33.00
Universal No. 2½ 30.00
Universal No. 2 ....33.00
Novelty No. 2, for common tubs 30.00
Novelty No. 3 " " 34.50
Excelsior E, for stationary tubs 39.00
Excelsior F " " 43.50
} dozen lots $3.00 per dozen.

PITTSBURGH.

Merchant Iron.

Terms.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 ₩ cent. for cash, if remitted within 10 days from date of invoice.

For fluctuations and discounts on card rates see weekly Pittsburgh Trade Report. The following are card rates.

Flat Bar.
1⅛ to 4 by ⅜ to 1 inch ....2.5¢
4¼ to 6 by ⅜ to 1 " ....2.6¢
1⅜ to 6 by 1⅛ to 1⅛ " ....2.9¢
1¼ and 1⅛ by ⅜ to ¾ " ....2.6¢
1 and 1⅛ by ⅜ to ¾ " ....2.7¢
⅝, ¾ and ⅞ by ⅜ to ⅝ inch ....2.9¢

Rounds and Squares.
1 to 1⅞ ....2.5¢ | ⅝ to 9-16 ....2.7¢
2 to 2⅝ ....2.7¢ | ½ to 7-16 ....2.9¢
2¾ to 3¼ ....3.0¢ | ⅜ ....3.1¢
3⅜ to 4 ....3.5¢ | 5-16 ....3.3¢
4¼ to 5 ....4.0¢ | ¼ ....3.5¢
¾ to ⅞ ....2.6¢ | 3-16 ....5.5¢

Oval Iron.
⅞ to 1⅛ ....2.9¢ | ½ ....3.3¢
⅝ to ¾ ....3.1¢ | ⅜ ....3.7¢

Half Oval and Half Round.
⅞ to 1¼ inch ....3.2¢ | ½ inch ....4.0¢
⅝ to ¾ " ....3.7¢ | ⅜ " ....5.5¢

Horse Shoe.
⅝ to 1⅛ by 5-16 to ⅞ inch ....3.5¢

Wagon Box Iron.
⅞ inch, Nos. 13 and 14 ....3.7¢
⅞ " " 11 and 12 ....3.5¢
¾ " " 13 and 14 ....4.0¢
¾ " " 11 and 12 ....3.8¢
⅝ " " 13 and 14 ....4.4¢
⅝ " " 11 and 12 ....4.1¢

Heavy Bands.
3½ to 6 by ¼ and 5-16 inch ....2.7¢
1⅛ to 3¼ by ¼ and 5-16 " ....2.7¢
1 to 1⅜ by ¼ and 5-16 " ....2.8¢
¾ to ⅞ by ¼ and 5-16 " ....3.0¢
⅝ and ½ by ¼ and 5-16 " ....3.5¢

Light Bands.
1⅛ to 6 by ⅛ to 3-16 ....3.0¢
1⅛ to 6 by Nos. 11 and 12 ....3.1¢
1 to 1⅜ by ⅛ to 3-16 ....3.1¢
1 to 1⅜ by Nos. 11 and 12 ....3.2¢
⅞ and 13-16 by ⅛ to 3-16 ....3.4¢
⅞ and 13-16 by Nos. 11 and 12 ....3.5¢
¾ and 11-16 by ⅛ to 3-16 ....3.7¢
¾ and 11-16 by Nos. 11 and 12 ....3.8¢
⅝ and 9-16 by ⅛ to 3-16 ....4.0¢
⅝ and 9-16 by Nos. 11 and 12 ....4.1¢
½ inch by ⅛ and 3-16 ....4.3¢
½ inch by Nos. 11 and 12 ....4.4¢

Hoop Iron.
1¼ to 4, Nos. 13, 14 and 15 ....3.3¢
1¼ to 2, Nos. 16, 17 and 18 ....3.4¢
1¼ to 2, No. 19 ....3.5¢
1¼ to 2, No. 20 ....3.6¢
1¼ to 2, No. 21 ....3.7¢
1¼ to 2, No. 22 ....3.8¢
15-16, 1, and 1⅛, Nos. 13, 14 and 15 ....3.5¢
15-16, 1, and 1⅛, Nos. 16, 17 and 18 ....3.6¢
15-16, 1, and 1⅛, Nos. 19 and 20 ....3.7¢
15-16, 1, and 1⅛, No. 21 ....3.8¢
15-16, 1, and 1⅛, No. 22 ....3.9¢
⅞, Nos. 13, 14 and 15 ....3.7¢
⅞, Nos. 16, 17 and 18 ....3.8¢
⅞, Nos. 19 and 20 ....3.9¢
⅞, No. 21 ....4.0¢
⅞, No. 22 ....4.1¢
13-16, Nos. 13, 14 and 15 ....3.9¢
13-16, Nos. 16, 17 and 18 ....4.0¢
13-16, Nos. 19 and 20 ....4.1¢
13-16, No. 21 ....4.2¢
13-16, No. 22 ....4.3¢
¾, Nos. 13, 14 and 15 ....4.0¢
¾, Nos. 16, 17 and 18 ....4.1¢
¾, Nos. 19 and 20 ....4.2¢
¾, No. 21 ....4.3¢
¾, No. 22 ....4.4¢
11-16, Nos. 13, 14 and 15 ....4.2¢
11-16, Nos. 16, 17 and 18 ....4.3¢
11-16, Nos. 19 and 20 ....4.4¢
11-16, No. 21 ....4.5¢
11-16, No. 22 ....4.6¢
⅝, Nos. 13, 14 and 15 ....4.4¢
⅝, Nos. 16, 17 and 18 ....4.5¢
⅝, Nos. 19 and 20 ....4.6¢
⅝, No. 21 ....4.7¢
⅝, No. 22 ....4.8¢
⅝, No. 23 ....4.9¢
9-16, Nos. 13, 14 and 15 ....4.6¢
9-16, Nos. 16, 17 and 18 ....4.7¢
9-16, Nos. 19 and 20 ....4.8¢
9-16, No. 21 ....4.9¢
9-16, No. 22 ....5.0¢
9-16, No. 23 ....5.1¢
½ inch, Nos. 13, 14 and 15 ....4.8¢
½ inch, Nos. 16, 17 and 18 ....4.9¢
½ inch, Nos. 19 and 20 ....5.1¢
½ inch, No. 21 ....5.2¢
½ inch, No. 22 ....5.3¢
½ inch, No. 23 ....5.4¢

The prices under Hoop Iron do not apply to Cotton Ties.
1-10¢ ₩ lb extra will be charged for each gauge lighter than the lightest indicated.
1-10¢ ₩ lb extra will be charged for cutting Hoops to specified lengths.

Barrel Hoops.
1⅛ to 2 in., cut to length.
9 to 11 lb, ₩ set of 6 hoops ....3.5¢
8 lb and less than 9 lb, ₩ set of 6 hoops ....3.6¢
Less than — lb, ₩ set of 6 hoops ....3.8¢

Extras for Cutting to Length all Preceding Iron.
All Iron, including Tire ....1.10¢

Tank Iron.
No. 9 and heavier ....3.3¢
Plow Slabs ....3.5¢
Plow Wings ....3.8¢

Sheet Iron.

	Common.	Charcoal.	Juniata.
Nos. 10 to 14	3.5¢	5.0¢	6.5¢
Nos. 15 to 17	3.8¢	5.3¢	6.8¢
Nos. 18 to 21	4.1¢	5.6¢	7.1¢
Nos. 22 to 24	4.3¢	5.8¢	7.3¢
Nos. 25 and 26	4.5¢	6.0¢	7.5¢
No. 27	4.7¢	6.2¢	7.7¢
No. 28	5.1¢	6.6¢	8.1¢

All sheets No. 18 and lighter, over 30 inches wide, not less than 2.10¢ extra.

Wood's Patent Planished Sheet.
1st quality (A) ....10¢ | 2d quality (B) ....9¢

Galvanized C. H. B.—(Charcoal Hammered Blooms.)
Nos. 14 to 20 ....12¢ | No. 27 ....15¢
Nos. 21 to 24 ....13¢ | No. 28 ....16¢
Nos. 25 and 26 ....14¢ | No. 29 ....18¢
57½ @ 60 % discount.

Coal Screen Iron.
1⅜ by ⅝ by 5-16 ....3.0¢ | 1 by ⅝ by 5-16 ....3.5¢

Angle Iron.
2¼, 3, 3½ and 4 inch ....3.3¢
1⅝, 1¾, 2 and 2¼ " ....3.3¢
1½ inch ....3.4¢
1 " ....3.6¢
1⅛ by 1 inch, for Plow Handles ....3.8¢
1⅜ by ¾ " " ....3.8¢
1⅜ by ⅝ " " ....3.9¢

T Rail.
8 lbs. to the yard ....2.9¢ | 20 lbs. to the yard ....2.8¢
12 " " ....2.8¢ | 28 " " ....2.8¢
16 " " ....2.8¢ | 30 " " ....2.8¢
Splice Joints for 12, 16 and 20 lb. Rail, 40¢ each; 28 and 30-lb. Rail, 50¢ each; 40-lb., 60¢ each.
3½ by ⅜ and ½ Spikes for 20 and 28-lb. Rail ....3⅜¢
2½ and 3 by ⅜ " " 12 and 16-lb. " ....4.0¢
2⅜ by 5-16 " " 8-lb. Rail ....4½¢

Flat Rails.—Punched and Countersunk.
1⅛ to 2 by ½ to ⅝ inch ....3.0¢
1⅜ by ⅜ and 7-16 inch ....3.2¢
1¼ by ⅜, 7-16 and ½ inch ....3.5¢

Juniata Nail Rods ....6.5¢
Norway Nail Rods ....8.0¢
Guard Iron, ⅛x⅜x⅛ and ⅛x⅜x⅛ ....4.0¢
Guard Iron ⅜x⅜x9-16 and ⅛x⅜x⅛ ....4.2¢
Drag Bars ....3.3¢
Dropper Bars ....3.8¢
Cylinder and Landside Iron ....3.2¢
Plow Beam Iron ....3.0¢

Nails.
See Pittsburgh Trade Report.

Best Quality Refined Cast Steel.
Square, Flat, Octagon and Round.
⅜ to 2 inches, inclusive ....9¢
1-16 and 2⅛ to 3 inches ....10¢
¼ and 3⅛ to 4 " ....11¢
7-32 and 4⅛ to 5 " ....12¢
3-16 and 5⅛ to 6 " ....15¢
5-32 inch ....20¢
⅛ " ....25¢
Oil Well Steel Forgings ....20¢

Machinery Steel.

	Crucible	Bessemer & Open Hearth.
Ordinary Sizes, ⅜ to 2 inch Round	4¾¢	3¢
5-16 and 2⅛ to 3 inches	5¾¢	4¢
¼ and 3⅛ to 6 "	6¾¢	5¢
7-32 inch	8 ¢	6¢
3-16 "	10 ¢	8¢

Square, Flat and Octagon, ½¢ extra throughout the list.
Cut to specified lengths, ½¢ extra.

Hammer Cast Steel.
Crucible Cast Steel ....5½¢
Open Hearth Cast Steel ....4½¢

Sheet Steel.—Crucible.

	Best.	2d Qual.	3d Qual.	Bessemer & Open Hearth.
To 21 gauge	10¢	9¢	7¢	5½¢

1¢ extra for each additional gauge.
Cut to multiples or specified lengths, ½¢ extra.

Miscellaneous Cast Steel.
Auger and Auger Bit ....4¢
Axle Steel for carriages and wagons ....4¢
Frog Points and Plates ....6¢
Frog Side Bars ....5¢
Pick; plain (hammered) ....5¢
Pick and Mattock, beveled (rolled ....4¢
Skate Steel ....5¢
Table Cutlery, plain ....3½¢
Table Cutlery, beveled ....4¢
Pike and Cant Hook ....7¢
Coal and Granite Wedge ....7¢
Roller ....6¢
Spindle, subject to Machinery classification ....6¢
Trap Spring Steel ....7¢
Forged Crank Pins and Lathe Spindles ....8¢
Piston Rods, plain ....6¢
Piston Rods, forged to shapes ....8¢
Slide Bars, plain ....5¢
Slide Bars, forged to shapes ....8¢

Open Hearth or Bessemer
Boiler, Fire-Box and Flue Sheets, not less than 3-16 thick ....4½¢
Boiler, Fire-Box and Flue Sheets, not less than ⅛ thick ....5½¢
Circulars and semi-circulars, when ordered separately ....6½¢
Smoke Stack, to shape ....5½¢
Locomotive Tank Steel ....4½¢

File Cast Steel.
Square, Round, Half Round and Flat Bastard, 8-inch and over ....4¢
Mill Saw, 8-inch and over ....5¢
Taper, 3½-inch and over ....6¢
Horse and Shoe Rasp ....5¢

Spring Cast Steel ....4½¢
Spiral, Taper, cut to lengths ....5½¢

Tire Cast Steel.
1x¼ and over ....6½¢
1x3-16, ⅞x3-16 and ¼ ....7¢
1 and 13-16x⅛ and 5-32, ¾x3-16 and 5-32 ....9¢
¾ and ⅝x⅛ and 3-32 and 12 g ....10¢
Solid Safe Cast Steel ....4¢
Three and Five Ply Cast Steel ....5¢

Agricultural Implement Cast Steel.
Fork and Rake, Crucible ....4½¢
Horse Rake Steel, cut to lengths, Crucible ....5¢
Hoe, Crucible ....5¢
Corn Stalk Cutter, beveled ....4½¢
Beveled Hoe and Shovel Steel in Bars ....4½¢
Crucible Plow Steel in Slabs ....4½¢

Bessemer and Open Hearth.
Spring ....2½¢
Spring spiral and taper, cut to lengths ....3½¢
Tire, 2-16 thick and above ....2½¢
Toe Calk ....2½¢
Plow ....2½¢
Axle Billets ....2 ¢
Sleigh Shoe ....2⅝¢
Cutter Shoe, cut to lengths and tapered ....3¢
Scythe Back Steel ....3½¢
Grain Drill Bars ....2½¢
Grain Drill Points ....3½¢
Rolling Coulter Blanks, cut and punched ....6¢
Thrasher Steel ....2½¢
Thrasher Teeth ....3½¢
Rolled Hammer Billets ....2½¢
Terms.—Four months: 3 per cent. discount for cash, if remitted within 30 days.

Rolls and Castings.
Furnace Floor and Straightening Plates ....1½¢
Housings and Castings not otherwise specified ....2½¢
Guide Plates ....
Spindles and Coupling Boxes ....1¾¢
Sand Rolls and Pinions, large size ....2¼¢
Sand Rolls and Pinions, small size ....2¾¢
Pipe Mill Castings ....
Rolling Mill Castings under 50 lb ....5 ¢
Spur and Bevel Wheels, large ....4 ¢
Spur and Bevel Wheels, small ....4½¢
Pulleys up to 30 inches ....4½¢
Pulleys over 30 inches ....4 ¢
Engine Castings, light ....4½¢
Engine Castings, heavy ....4 ¢

Chilled Rolls.
6 to in. diam., to 20 in. long ....4 ¢
8 to 15 in. diam., 8 to 40 in. long ....4 ¢
25 to 24 in. diam., 15 to 72 in. long ....3½¢
14 to 31 in. diam., 72 to 108 in. long ....3½¢
After October 1, 1881, no discounts will be made at settlement, as heretofore, prices quoted being net.

White and Red Lead.
Strictly Pure White Lead in Oil in kegs, 5½¢; in 25 lb Tin Pails, ½¢ ₩ lb over keg price; 12½ lb Tin Pails, 1¢ ₩ lb over keg price; assorted, 1 to 5 lb cans, 3¢ ₩ lb over keg price.
Dry White Lead in barrels ....5½¢
Red Lead, very brilliant, in kegs and barrels ....5½¢
Litharge (Potter's Lead) " " " ....5½¢
Freights equalized with all points where White Lead is made.
Terms: Note at 60 days, or if paid within 15 days from date of invoice a discount of 2½ per cent. will be allowed, but not otherwise.

Window Glass.
Discount, 70&10 % *Single Strength*, 75 % *Double.* Prices current, ₩ box of 50 feet.

United Inches	Sizes	AA.	A.	B.	C.
	Single Strength.				
25	6 x 8 to 10 x 15	$8.75	$8.00	$7.50	$7.00
39	11 x 14 to 15 x 24	9.25	8.50	8.00	7.25
48	16 x 24 to 20 x 28	10.75	9.75	8.75	7.75
54	15 x 34 to 24 x 30	12.25	10.75	9.00	....
60	26 x 28 to 24 x 36	13.00	11.50	9.75	....
70	26 x 36 to 26 x 44	14.50	13.25	10.75	....
80	26 x 46 to 30 x 50	15.00	14.00	11.25	....
84	30 x 52 to 30 x 54	....	....	....	....
90	30 x 56 to 34 x 56	....	....	....	....
94	34 x 58 to 34 x 60	....	....	....	....
100	36 x 60 to 40 x 60	....	....	....	....
	Double Strength.				
25	6 x 8 to 10 x 15	13.25	12.25	11.25	10.50
39	11 x 14 to 15 x 24	14.50	13.25	12.50	11.25
48	16 x 24 to 20 x 28	17.25	15.75	14.00	....
54	15 x 34 to 24 x 30	19.75	17.25	14.50	....
60	26 x 28 to 24 x 36	21.00	18.50	15.75	....
70	26 x 36 to 26 x 44	23.25	21.25	17.25	....
80	26 x 46 to 30 x 50	24.00	22.50	18.00	....
84	30 x 52 to 30 x 54	25.75	23.25	19.25	....
90	30 x 56 to 34 x 56	27.75	25.00	21.75	....
94	35 x 58 to 34 x 60	29.25	27.75	24.00	....
	36 x 60 to 40 x 60	33.25	30.00	27.75	....

Sizes above — $10 ₩ box extra for every 5 inches.
An additional 10 per cent. will be charged for all glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket.

Hubbard, Bakewell & Co.'s Goods.
Axes, Single Bit, Lippincott ....per doz., $7.25
Axes, Single Bit, James & Co ....per doz., 6.75
Axes, Double Bit, Lippincott ....per doz., $13.00
Axes, Double Bit, James & Co ....per doz., 10.00
Drain Tools, list ....dis 20 %
Hoes, Planters' ....dis 60 %
Hoes, Scovill Pattern ....dis 60 %
Hoes, Handled, Square Eye, German ....dis 50 %
Handles, Cross Cut ....per doz., $2.50
Handles, Shovel, Bent, Bored, Riveted..per doz., 2.25
Saws, Circular ....dis 45 %
Saws, Long ....dis 40 %
Saws, Cross-Cut, H. B. & Co., Champion, per foot net $0.30
Saws, Cross-Cut, Lippincott, Champion, per foot net $0.27
Shovels, list ....dis 20 %
Spades, list ....dis 20 %
Scoops, list ....dis 20 %

BOSTON.

Reported by Bigelow & Dowse.

Anvil & Vise.—
10 20 30 40
Cheney.....$3.50 4.50 5.50 6.50 .....dis 25 %
Eagle, Fisher & Norris, No. 00, $1.75; 0, $2.25; 1, $2.75; 2, $3.25; 3, $4.00; 4, $4.50; 5, $5.25; 6, $6.00; 7, $6.50; 8, $7.25; 9, $8.25.
100 ℔ and over 10¢ ℔.....dis. 20 %

Augers & Bitts.—
L'Hommedieu's Ship Auger.....dis 15 %
Jenning's Bitts.....dis 25 %
Cook's Bitts.....dis 40 & 10 %
Shepardson's Double-Cut Bitts.....dis 45 %
Shepardson's Double Gimlets.....dis 40 %
Stearn's Extension Hollow Augers—
No. 2, ₱ doz., $48; No. 3, ₱ doz., $60 list.....dis 20 %
Bonney's Extension Hollow Augers.....₱ doz $36.00
Pierce's Bitts.....dis 50 %
Griswold Bitts.....dis 60 %

Axes.—Blue Jackets.....₱ doz $7.50
Dowse Handled Boys'.....dis 35 %

Ax Handles.—
Oak Extra, 31 in., No. A.....₱ doz $2.50
Oak Extra, 34 in., No. A.....₱ doz 2.50
Oak Extra, 31 in., No. B.....₱ doz 2.00
Oak Extra, 34 in., No. B.....₱ doz 2.00
Oak Extra, 31 or 34 in., No. C.....₱ doz 1.40

Axle Clips......dis 50 %

Balances.—Chatillon's.....dis 40 %

Barn Door Rail.—
Cast Angle (for Anti-Friction Hangers).....₱ ft., 2¢
Cast Half Round.....₱ ft., ⅜, 2½¢; ½, 3¢
Wrought Round.....₱ ft., ¾, 3¢; ⅞, 4¢; 1, 5¢

Bells.—Connel's Crank Gong, reduced list..dis 20&10 %

Bird Cages.
Japanned M. B. & D., reduced list, 1879.....dis 40 %
Brass M. B. & D. reduced list, 1879.....dis 33⅓ %

Blind Fasts.
No. 6 Fasts.....₱ C sets 6.00
Veazie Fasts.....₱ C sets 6.00
Shedd's.....₱ C sets 6.50

Blind Hinges.—Mall. Hook, 3 holes..₱ C sets 7.00

Brad Awl Handles.—
Phœnix Adjustable.....₱ doz $2.00

Bolts.—Norway Iron Carriage.....dis 75 %
Common Carriage, new list.....dis 75 %
Eagle Carriage.....dis 75 %

Borax.—Refined.....₱ ℔ 12¢

Boring Machines.—
Eagle Upright, each.....$5.50 list } dis 50 %
Eagle Angle, each.....6.75 list }

Braces.—Barber's.....dis 40&5 %
Spofford's.....dis 50&5 %
Backus's.....dis 50&5 %

Bracket Saws.—Holly Scroll Saw.....each $2.25
Bracket Saws, extra quality, to No. 5.....₱ gro. 0.75
Steel Frame, with patterns.....₱ doz. 6.50
Lester.....dis 20 %
New Rogers, all iron.....dis 25 %

Bracket Saw Blades.—Griffith's pat., ₱ gross 75¢

Brackets.—
R. B. & M. Flower Pot, reduced list.....dis 40&10 %
Bronzed Shelf M. B. & D., new list.....dis 50&10 %
Store Shelf.....dis 40&10 %

Butts.—Union Fast Joint.....dis 60&10 %
Union Loose Joints.....dis 70&10 %
Union Japanned Acorn.....dis 70&10 %
Union Silvered Acorn.....dis 70&10 %
Union Boston Finish.....dis 70&10 %
Union Spiral Spring.....dis 25&10 %
Wrought Brass.....dis 75&10 %

Carriage Bolts. Eagle Norway.....dis 75 %
Common, new list.....dis 75 %

Carriage Jacks.—Climax No. 1.....₱ doz $20.00
Climax No. 1½.....₱ doz 15.00
Climax No. 2.....₱ doz 12.50
Universal.....dis 25 %
Universal No. 1.....each $2.00
Universal No. 2.....each 3.00
Universal No. 3.....each 6.00
Universal No. 4.....each 6.00
Universal No. 5.....each 6.50

Cartridges.—U. S. Cartridge Co.....dis 50&10 %

Cards
Watson's make Horse & Curry...dis 10 % } Rev. List
Watson's Cotton.....dis 10 % } Aug., 1883.
Watson's Wool.....dis 10 % }

Casters.—Bed and Table.....dis 50&10 %

Chain.
Coil 3-16.....₱ ℔ 9¢
Coil ¼.....₱ ℔ 7¢
Coil 5-16.....₱ ℔ 6¢
Coil ⅜.....₱ ℔ 5¢
Coil 7-16.....₱ ℔ 5¢
Coil ½.....₱ ℔ 5¢

Chalk.—White, Carpenter's.....₱ gross 60¢
Red, Carpenter's.....₱ gross 80¢
Blue, Carpenter's.....₱ gross $1.00
Crayons.....12¢

Chisels.—Peck, Stow & Wilcox.....dis 70&10 %
Underhill, Framing.....dis 35 %
Buck's Chisels.....dis 30 %

Coal Hods.—"Dover."—Galv'd, New List...dis 60 %
Japanned, New List.....dis 60 %

Cocks.—Brass. L. F. & Co.....dis 50&10 %

Coffee Mills.—New List.....dis 40 %

Copper Rivets.—.....dis 50 %

Cordage.—Manila, usual trade dis 1¢.....₱ ℔ 14½¢
Jute.....₱ ℔ 8¢

Cow Ties......dis 50 %
No. 30 3 ft. No. 6 Wire, with toggle.....₱ doz $3.80
No. 35, 3 ft. No. 6 Wire, with snap.....₱ doz 4.00
No. 40, 3½ ft. No. 6 Wire, with toggle.....₱ doz 4.20
No. 45, 3½ ft. No. 6 Wire, with snap.....₱ doz 4.50
No. 50, 4 ft. No. 4 Wire, with toggle.....₱ doz 4.75
No. 55, 4 ft. No. 4 Wire, with snap.....₱ doz 5.00
No. 60, 4½ ft. No. 3 Wire, with toggle.....₱ doz 5.00
No. 65, 4½ ft. No. 3 Wire, with snap.....₱ doz 5.80

Crow Bars.—Cast Steel.....₱ ℔ 7¢
Iron Steel-pointed.....₱ ℔ 6¢

Cutlery.—Pocket American Shear Co.'s.....dis 40 %
Butcher Knives, Wood's, Lap Bolster, Square Handle.....dis 40 %
Steak Knives.....dis 40 %
Lap Bolster, Oval Handle.....dis 40 %
Sticking.....dis 40 %
Skinning.....dis 40 %
Butcher, Common Round Handle, Wood's.....dis 40 %
Shoe Knives, Wood's.....dis 30 %

Dividers.—Cook's.....dis 25 %

Dog Collars......dis 20 %

Door Springs.—Tower Rod.....₱ doz $1.62
Imitation Torrey's Rod.....₱ doz 1.45
Gem Coil, new list.....dis 50&10 %
Crown.....₱ doz $1.25
Warner's.....₱ doz 2.00

Door Stops.—Thurston's.....dis 50 %

Drawer Knobs.—Thurston's.....dis 50 %

Drills.—Morse Bitt Stock } dis 40 %
Morse Straight Shank }

Emery.—Wellington Mills.....₱ ℔ 10¢
Walpole Emery Mills.....₱ ℔ 5¢
Turkish, in 10 ℔ cans.....₱ ℔ 7¢

Enameled Ware.—
Standard Mfg. Co. Kettles.....dis 60 %
Standard Sauce Pans.....dis 30 %

Felloe Plates.—Wrought.....₱ ℔ ¢

Files.—American File Co.....dis 50 %
Nicholson File Co.....dis 50 %

Fluting Machines.—Knox List, $4.00.....dis 25 %

Forks.—W. C. & Co. Manure.....dis 50 %
Eastern Tool Co.'s. Manure.....dis 60 %

Gimlet Bits.—
Genuine German, No. 125, 1-32 to 8-32.....₱ doz $1.00
Pierce's.....₱ doz .88

Glass Cutters.—Combination Glass Cutter and Knife Sharpener.....₱ doz $1.00

Grub Hoes.—K. P. & Co.'s No. 2, $11.50 ₱ doz. dis 50 & 10 %

Hammers.—Maydole's.....dis 15 %
Hartford Hammer Co.....dis 20 %

Hangers & Rollers.—Anti-Friction.....dis 50 %
Acme Rollers.....dis 50 %
Climax.....dis 50 %
Common Hangers.....dis 50&10 %
Common Rollers.....dis 50&10 %
Victor Hangers.....dis 33⅓ %
Victor Rail.....dis 40&10 %

Hand Screws......dis 10 %

Hatchets.—C. F. Dowse, new list.....dis 35 %
Underhill.....dis 35 %

Hay Knives.—Lightning.....₱ doz $18.00, net

Hinges.—Strap and T (new list).....dis 60&10 %
Providence Plate.....₱ ℔ 5¢
Wrought Screw Hook.....₱ ℔ 5¢

Hoes.—Eastern Tool Co.....dis 60&10 %
W. C. & Co.'s.....dis 60 %

Hooks and Staples.—Brewers (new list)...dis 70 %

Horse Nails.

	No. 6	7	8	9	
Putnam Pointed	.24	.22	.21	.20	.....5&7 %
Bridgewater	.23	.21	.20	19.	.....30 %

Ice Cream Freezers.—Packer's, new list..dis 50&5 %

Knobs.—"Norwalk." New list.....dis 60¾& 5%
Silver Glass.....dis 50&10 %
Silver Glass Bell Pulls.....dis 50&10 %

Lanterns.—Tubulars, No. 0.....₱ doz $7.50

Lawn Mowers.
Continental.....dis 40&10 %
Quaker City.....dis 40&5 %
National.....dis 50 %

Lead.—Sheet.....₱ ℔ 6¾¢
Pipe.....₱ ℔ 5¾¢

Locks.—Norwalk.....dis 60¾&5 %
Eagle Cabinet.....dis 40 %
Eagle Trunk.....dis 15 %
Mallory, Wheeler & Co.....dis 60¾&5 %

Manure Forks.—W. O. & Co.....dis 50 %
Eastern Tool Co.'s.....dis 60 %

Mattocks.
K. P. & Co., Long Cutter, $16.00 ₱ doz...dis 50 & 10 %
K. P. & Co., Short Cutter, $15.50 ₱ doz...dis 50 & 10 %
K. P. & Co., Pick Cutter, $16.00 ₱ doz....dis 50 & 10 %

Measuring Tapes.—Eddy's.....dis 20 %

Meat Cutters.—Miles' Challenge.....dis 30 %
Hale's (new list).....dis 40&10 %
American.....dis 33⅓ %

Money Drawers.—Tucker's Alarm....₱ doz $22.50

Mouse Traps.—Delusion.....₱ doz 1.35
Novelty.....₱ doz

Nails......₱ keg

Oilers.—Zinc and Tin.....dis 60 %
Brass and Copper.....dis 50 %

Ox Bows.—Extra finished and varnished....dis 15 %
1¼ in., ₱ doz. pair...$7.00 | 2 in., ₱ doz. pair..$10.00
1⅝ in., ₱ doz. pair... 9.00 | 2½ in., ₱ doz. pair.. 12.00

Paper.—Common Tarred Sheathing.....₱ ℔ 1¾¢
Eagle Brand Tarred Sheathing.....₱ ℔ 2 ¢
Common, Dry Sheathing.....₱ ℔ 1¾¢
Eagle Brand Dry Sheathing.....₱ ℔ 2¾¢

Picks.—K. P. & Co., Adze Eye, 5 to 6 ℔ $12.00. dis 50 & 10 %
K. P. & Co., Adze Eye, 6 to 7 ℔ $13.00.....dis 50 & 10 %

Planes.
Auburn Tool Co., Bench.....dis 20&10 %
Auburn Tool Co., Fancy.....dis 15&10 %
Auburn Tool Co., English Iron.....dis 15&10 %
N. Y. Tool Co., Bench.....dis 25&10 %

Plated Ware.—Rogers & Bro.....dis 50

Pliers.—Vom Cleff & Co.'s.....net list
Button's Wire Pliers.....dis 33⅓ %

Plumb & Levels.—Stanley R. & L. Co..dis 70&10 %

Pocket Knives.—American Shear Co.'s.....dis 40 %

Potato Diggers.—W. C. & Co., reduced list..dis 50 %
Eastern Tool Co.'s.....dis 60 %

Pulleys.—Acme or Excelsior, 1¾ in.....₱ doz 22¢
Acme or Excelsior, 2 in.....₱ doz 24¢

Pulley Blocks......dis 50 %

Pumps.—Union Manufacturing Co.
Iron Cistern.....dis 50 %
Iron Pitcher Spout.....dis 60 %
Copper.....dis 30 %

Rivets.—Black (new list).....dis 40 %
Carriage in 10 ℔ papers (new list).....dis 40 %
Copper.....dis 50 %

Razors.—Torrey's.....dis 20 %

Rules.—Stanley, Boxwood.....dis 75&10 %
Stanley, Ivory.....dis 50&10 %

Sad Irons.—Common.....₱ ℔ 3¢
Laundry.....₱ ℔ 6¾¢
Tailors' Geese.....₱ ℔ 6 ¢
Enterprise "Potts'".....dis 35 %

Sash Locks.—King & Hutchinson's, new list..dis 40 %

Sandpaper.—Baeder & Adamson.....dis 35 %

Sash Weights.—Patent Eye.....₱ ℔ 1¼¢

Saws.—Hand Saws, Disston's.....dis 20 %
Cross-Cut Saws.
Disston's, Common Tooth.....₱ foot 68¢, dis 45 %
Disston's Great American Tooth..₱ foot 68¢, dis 45 %
Boynton's Lightning Tooth.....₱ foot 45¢
M. B. & D., Hand Saws.....dis 33⅓ %
Richardson Bros.....dis 35 %

Saw Blades.—Disston.....dis 20 %
Welch & Griffith, Extra.....₱ doz $7.20
Welch & Griffith, No. 2.....₱ doz 6.00

Scales.—Fairbanks.....dis 20 %

Screws.
Flat-Head Iron.....new list, dis 85 %
Flat-Head Brass.....new list, dis 85 %
Round-Head Brass.....new list, dis 83⅓ %
Round-Head Iron.....new list, dis 83⅓ %
Grilley Round-Head Nickel-Plated Common..dis 50 %

Scythes.—Clippers in boxes.....₱ doz $6.00

Shaves. Kimball's.....₱ inch 7½¢
Watrous.....dis 20 %

Shears.—American Shear Co., new list.....dis 70 %

Shot.—Tatham's.....₱ ℔ 6¢

Shovels.—O. Ames, new list.....dis 20 %
O. Ames, other brands, new list.....dis 20 %

Sinks.—Magee Patent.....dis 30 %

Snow Shovels......$3.75

Skates.—Union.....dis 40 %
Union Roller.....dis 25 %

Stocks and Dies.—King's.....dis 10&5 %

Tacks.
Swedes Tinned.....dis 30&10 %
Swedes Iron.....dis 30&10 %
Gimp and Lace.....dis 20&10 %
Copper Tacks.....dis 30&10 %
All balance on list.....dis 20&10 %

Traps.—Oneida, Genuine.....dis 33⅓ %
Oneida, Imitation, H. & N.....dis 60 %
Blake's.....dis 40&10 %

Vises.—Simpson's Adjustable.....dis 25&5 %
Howard Vise Co.....dis 25 %
Prentiss'.....dis 20 %

Weather Strips.—Packer's.....₱ doz $4.50
Browne's Flexible Rubber.....dis 30 %
In 25 feet boxes: No. 1, ⅜ in. wide, ₱ yard, 10¢; No. 2, ⅝ in., 15¢; No. 3, ⅞ in., 20¢; No. 4, 1 in., 25¢
Black Walnut Spring Weather Strips.....₱ doz $3.50

Window Springs......dis 35 %
Babcock's No. 3.....₱ gross $0.25
Babcock's No. 4.....₱ gross 4.15

Wire Cloth.—"Clinton".....₱ sq. ft 2 ¢

Wire Fence.
Washburn Painted Barbed.....₱ ℔ 4½¢
Washburn Galvanized Barbed.....₱ ℔ 5 ¢

Wire Goods.—Gate Hooks & Eyes, &c..dis 70&10&10 %

Wrenches.—A. G. Coe's.....dis 60 %
Girard Mfg. Co.....dis 60&10 %
Girard Agl.....dis 70&10 %
"Always Ready".....dis 25 %

Wringers.
Novelty for Common Tubs No. 2—10-inch.₱ doz $27.00
" " " " No. 3—11-inch.₱ doz 31.50
Excelsior for Stationary Tubs No. E—10-inch.....₱ doz 30.00
Excelsior for Stationary Tubs No. F 11-inch.....₱ doz 43.50
Excelsior with Folding Bench No. A—10-inch.....₱ doz 48.00
Excelsior with Folding Bench No. B—11-inch.....₱ doz 52.50
Novelty Set Tub, E.....₱ doz .....
Keystone, Wood Frame No. 1½.....₱ doz .....
Keystone, Iron Frame No. 2½.....₱ doz .....

Zinc......₱ ℔ 6¢

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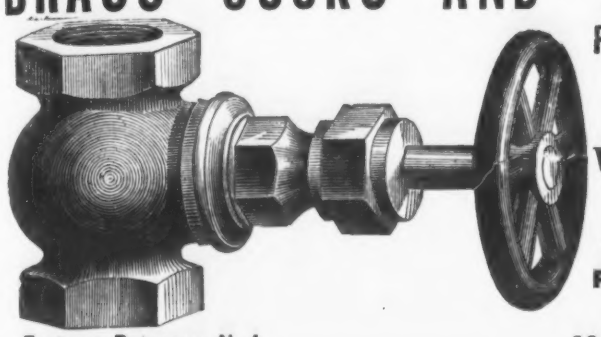

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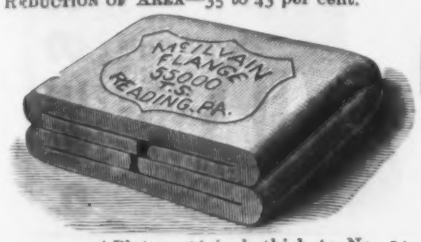

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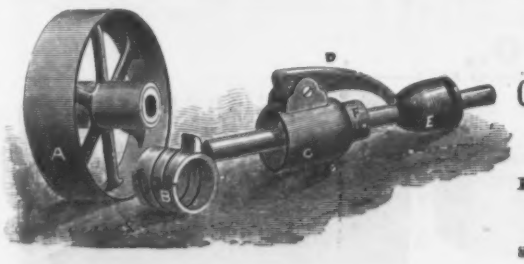

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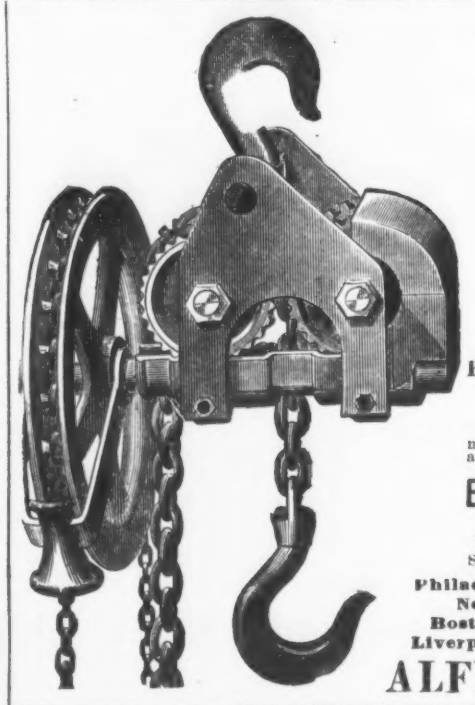

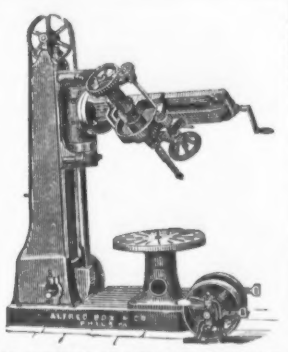

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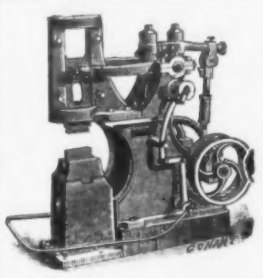

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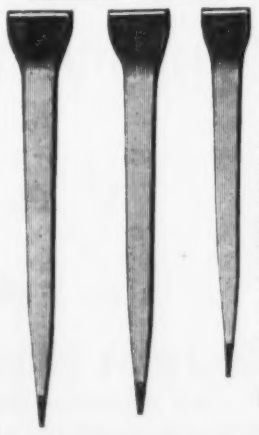

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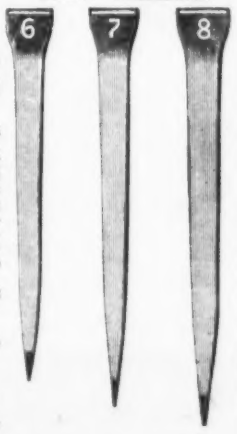

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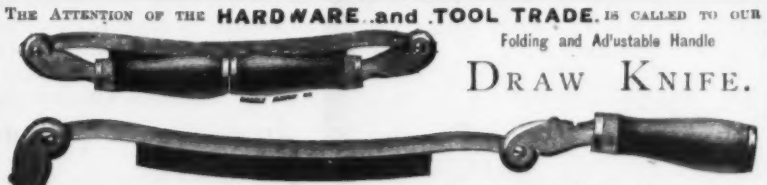

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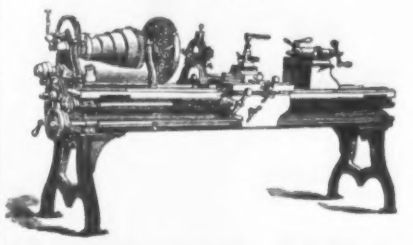

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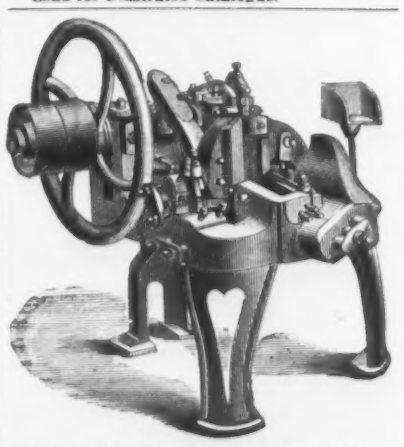

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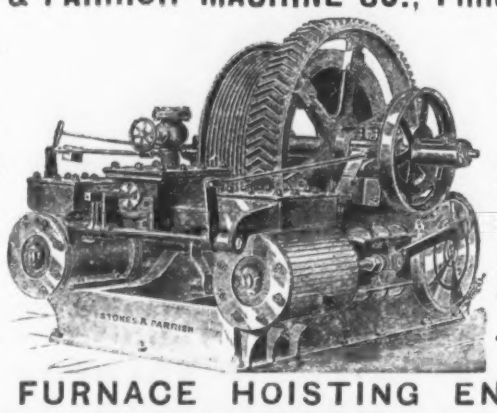

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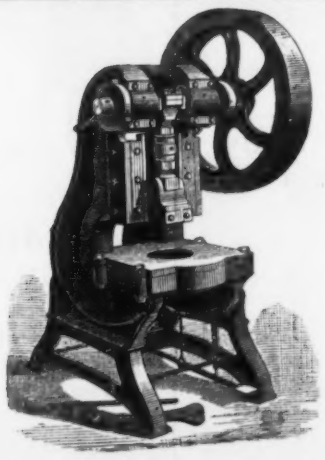

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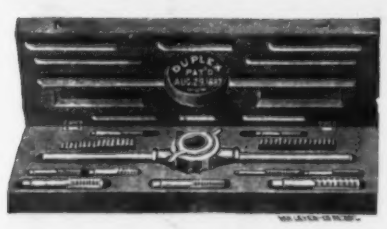

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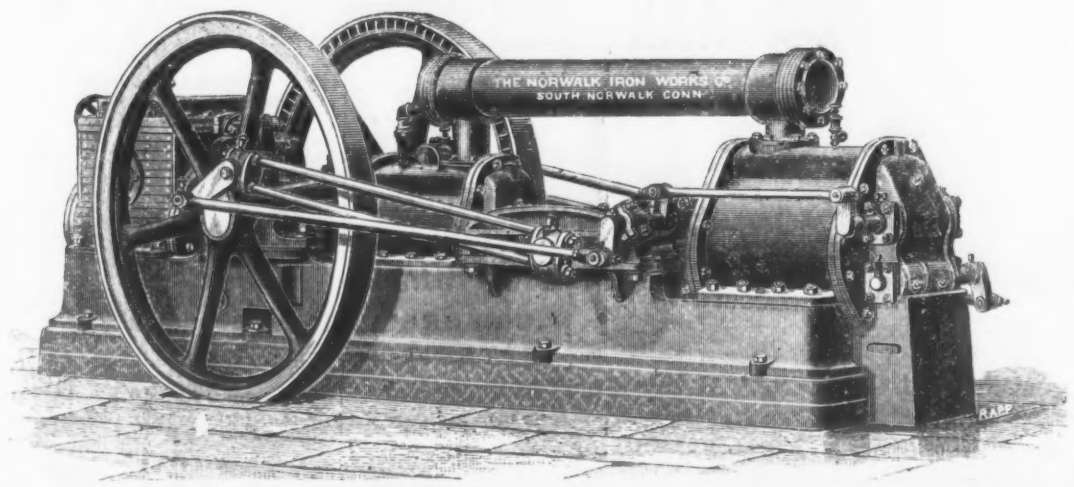

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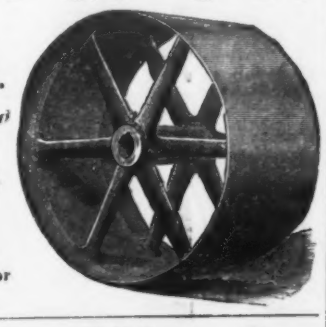

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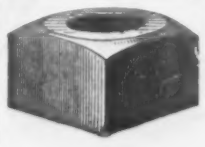

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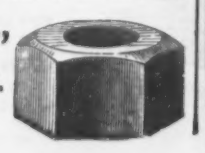

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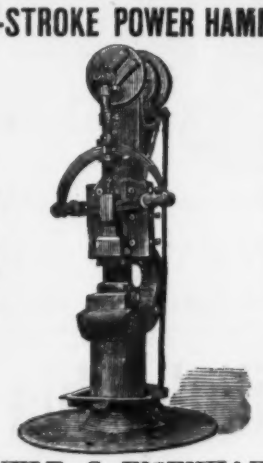

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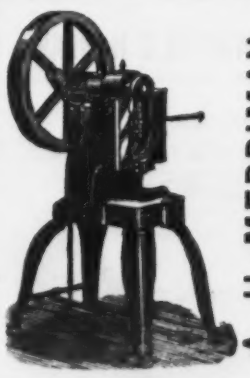

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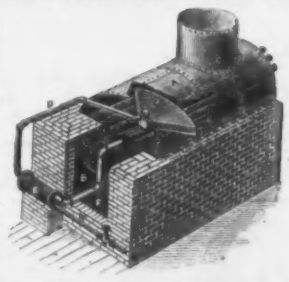

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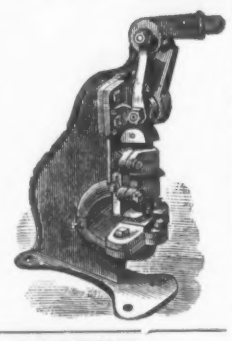

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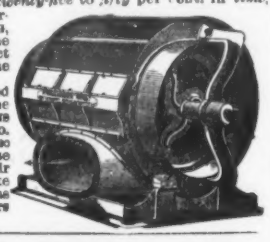

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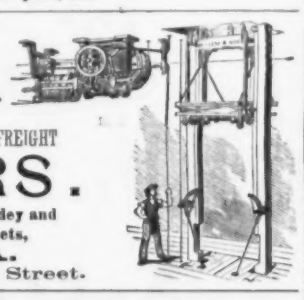

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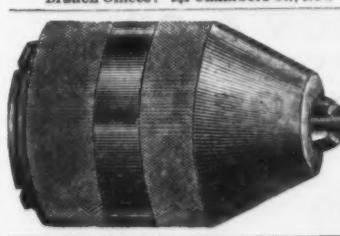

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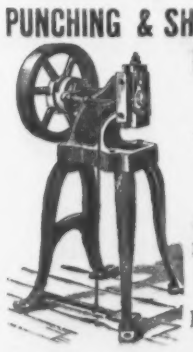

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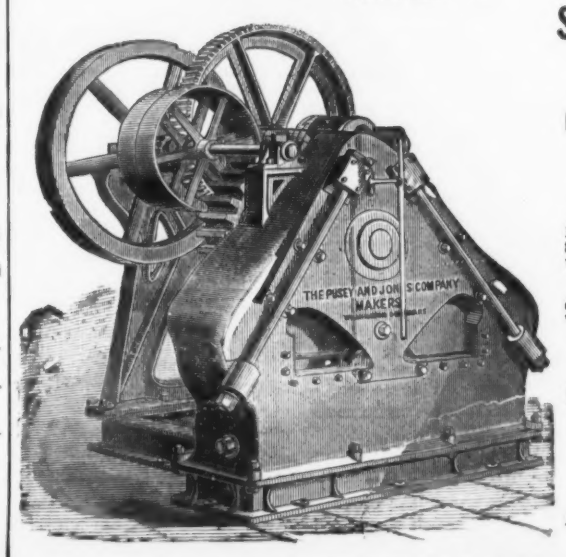

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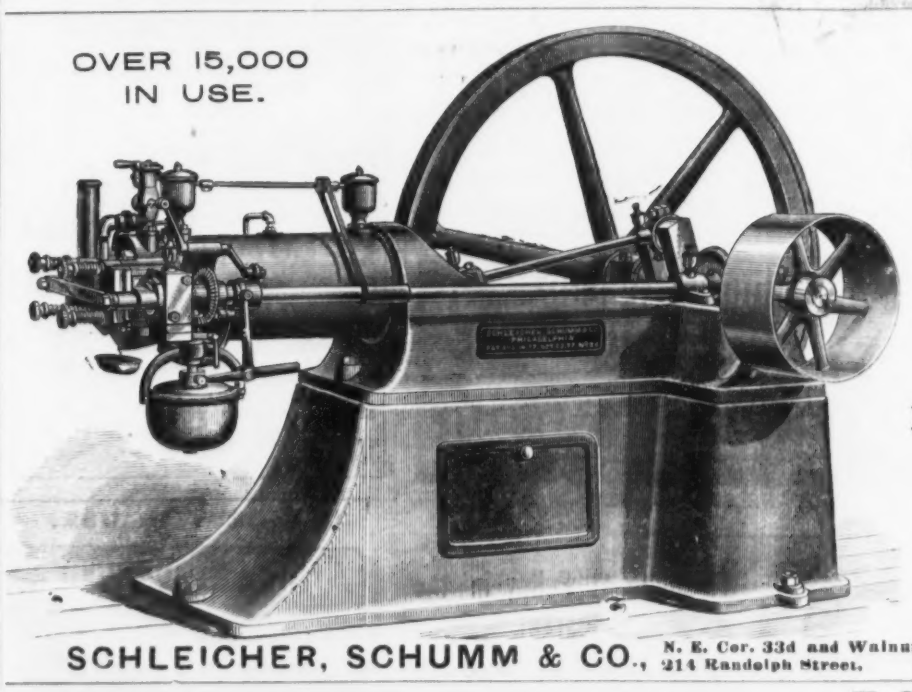

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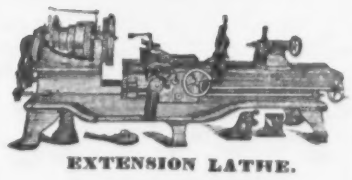

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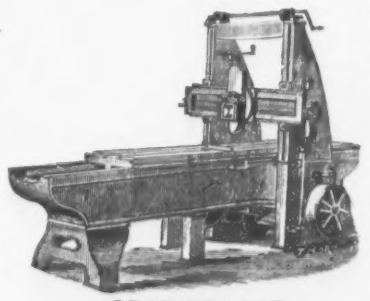

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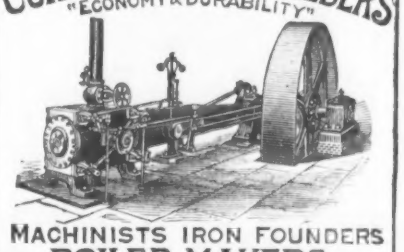

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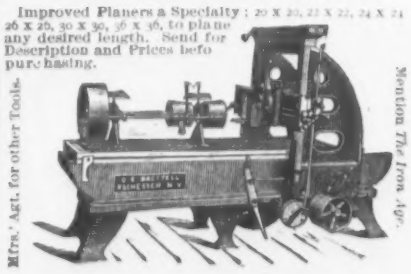

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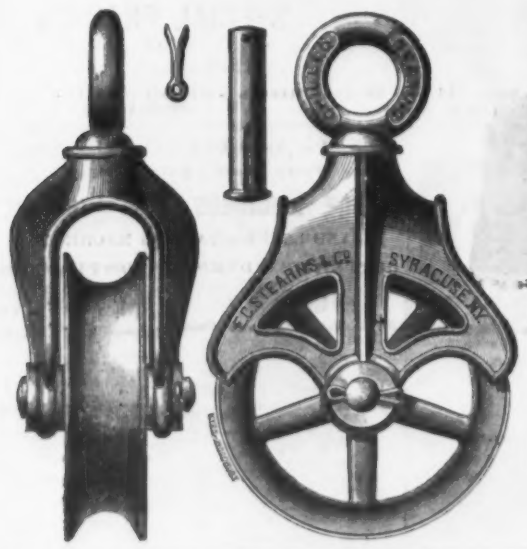

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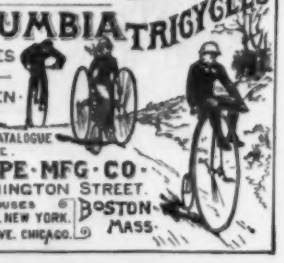

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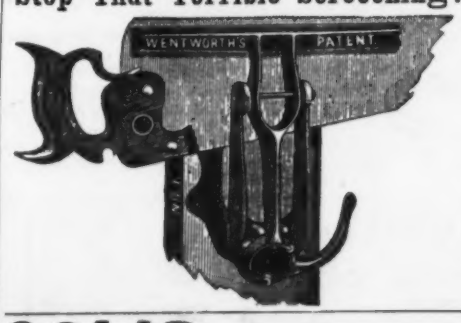

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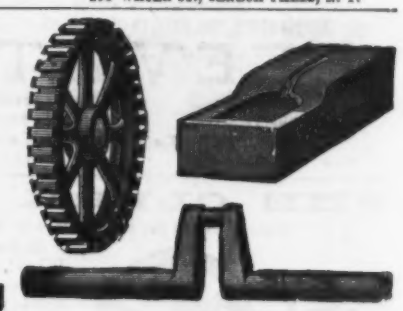

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